

BALLISTIC MISSILE DEFENSE ORGANIZATION

ADVANCE PLANNING BRIEFING FOR INDUSTRY

***Updated Agenda
Attendance Roster
Proceedings***

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Note: The data contained herein represents the most current information available at this time; the information provided may be adjusted and no commitment or obligation on the part of the U. S. Government may be construed; specifications, requirements, and funding may be adjusted; and circumstances may dictate changes in acquisition strategy.

AGENDA

Monday, 28 February 1994

6:00 p.m.- **Late Registration & Light Reception**

8:00 p.m. *at Ritz-Carlton, Tysons Corner, VA (Outside Meeting Salon - 5th Floor)*

Tuesday, 1 March 1994

7:30 a.m.- **Late Registration & Light Refreshments**

8:30 a.m. *Ritz-Carlton, Tysons Corner*

8:30 a.m. **Administrative Remarks**

Mr. Stephen Moss, *Assistant Director, Contract Policy and Special Projects, BMDO*

8:35 a.m. **Welcome and Introduction of Keynote Speaker**

MG William E. Eicher, U.S. Army (Ret.), *Vice President, American Defense Preparedness Association (ADPA)*

8:40 a.m. **Keynote Address: BMDO Vision, Reorganization, Major Issues and Challenges**

LTG Malcolm R. O'Neill, U. S. Army, *Director, BMDO*

9:30 a.m. **The Worldwide Ballistic Missile Threat**

Dr. Thomas Ward, *Director, Security, Intelligence, & Countermeasures Directorate, BMDO*

- Operational Threat Environment
- Theater Ballistic Missiles
- Strategic Ballistic Missiles

10:15 a.m. **Break - Refreshments**

10:45 a.m. **International Participation**

Dr. J. David Martin, *Deputy for Strategic Relations, BMDO*

- Administration/Congressional Views on Participation
- Opportunities for Participation
- Other Nations' Views on BMD

11:10 a.m. **ABM Treaty Issues**

LTC Vincent Faggioli, *Assistant General Counsel for Treaty Compliance*

11:35 a.m. **Congressional Overview**

Mr. Thomas Johnson, *Chief, Legislative Support Division, BMDO*

- Fiscal Year 1994 Congressional Direction
- Outlook for Fiscal Year 1995

12:00 p.m. **Lunch**

Speaker: Dr. Anita Jones, *Director of Defense Research and Engineering (DDR&E)*

1:30 p.m. **Theater Missile Defense (TMD)**

COL Gordon Hagewood, USA, *Director, Program Management and Corporate Strategy, BMDO*

- TMD Program

LTC John Upton, USMC, *Director, Theater Defense Sensors, BMDO*

- Near-Term Program

LTC/P Perry Casto, USA, *Program Integrator for CORPS SAM, BMDO*

- TMD Acquisition Programs

Col Richard A. Ritter, USAF, *System Integration Directorate*

- TMD C³ Program

3:00 p.m. **National Missile Defense (NMD)**

Mr. Francis O'Meara, *Assistant Deputy for Readiness, BMDO*

- The Past, Present and Future of NMD
- Issues Affecting NMD

3:30 p.m. **Break - Refreshments**

4:00 p.m. **BMDO Technology Programs**

Col Gary Payton, *Deputy for Technology, BMDO*

- Current and Future Technology Programs

4:30 p.m. **Service PEO Perspectives**

Moderator: Mr. C. Richard Sokol, *Assistant Deputy for Theater Missile Defense (Acting)*

Air Force - Maj Gen Garry A. Schnelzer, USAF, *Program Executive Officer for Space*

- Issues Affecting Air Force BMD Support

Navy - Mr. David M. Altwegg, *Deputy Program Executive Officer for Theater Air Defense*

- Issues Affecting Navy BMD Support

Army - BG Richard Black, *Program Executive Officer for Missile Defense*

- Issues Affecting Army BMD Support

- 5:45 p.m. **Summary and Wrap-Up**
Mr. Stephen Moss
- 5:50 p.m. **Adjourn**
- 6:00 p.m.-
8:00 p.m. **Buffet Reception**
Adjacent to Meeting Salon (5th Floor)

Wednesday, 2 March 1994

- 7:30 a.m. **Refreshments and Coffee** (Outside Meeting Salon -5th Floor)
- 8:30 a.m. **Administrative Remarks**
Mr. Stephen Moss
- 8:35 a.m. **OSD Round Table**
Moderator: Dr. James Carlson, *Acting Deputy Director, BMDO*
Mr. Larry Lynn, *Deputy Under Secretary of Defense for Advanced Technology*
Dr. George Schneider, *Director, Strategic and Space Systems, Office of the Under Secretary of Defense for Acquisition and Technology*
Dr. John A. Wiles, *Deputy Director, Test and Evaluation, Office of the Under Secretary of Defense for Acquisition and Technology*
- OSD's Role in Missile Defense
 - OSD/BMDO Relationships
 - Where BMD Fits in the Big Picture
- 10:00 a.m. **Break - Refreshments**
- 10:30 a.m. **BMD BM/C³**
Col George W. Criss, *Director, BMC³, BMDO*
- BM/C³ Vision
 - Information Architecture
 - Rapid Prototyping
- 10:50 a.m. **FY94-FY95 Projected Contracting Opportunities**
Mr. Barry Richardson, *Director, Contracts Directorate and Competition Advocate, BMDO and Representatives from BMD Executing Agents*
- Significant Future Competitive Requirements
 - BMDO
 - Army
 - Air Force
 - Navy
- 12:00 p.m.- **Summary and Closing Remarks**
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PROGRAM OVERVIEW

BACKGROUND

The Ballistic Missile Defense Organization (BMDO) is an outgrowth of the Strategic Defense Initiative Organization (SDIO) which was disestablished in early 1993. The Strategic Defense Initiative (SDI) was formed in 1983 as a broad-based, integrated research program to explore the feasibility of eliminating the threat of weapons of mass destruction delivered by ballistic missiles of all ranges. By 1987, ballistic missile defense (BMD) technologies and system and architecture concepts were developed sufficiently to permit the Joint Chiefs of Staff to issue a formal statement of mission objectives and required system characteristics for a Phase I BMD system, which were intended to deter, or if deterrence failed, disrupt a massive Soviet first strike on the U.S. Further, U.S. defense strategy called for an incremental and evolutionary growth in BMD capabilities.

With the dismantling of the Soviet Union and the end of the Cold War, the SDI was re-oriented toward regional conflicts, the growing threat caused by the proliferation of weapons of mass destruction and short-range ballistic missiles, and the threat from potential accidental or unauthorized limited attack on the U.S. arising out of the political instability among the states of the former Soviet Union. DoD's BMD approach to addressing the changing world conditions was embodied in a concept called Global Protection Against Limited Strikes (GPALS), which integrated theater and strategic defenses and emphasized global protection in addition to deterrence. GPALS defenses were intended to protect forward deployed U.S. forces, power projection forces, and other U.S. overseas interests against short-range ballistic missiles; and the U.S. against a long-range limited attack of up to 200 reentry vehicles.

THE CURRENT ENVIRONMENT

The 1991 Gulf War underscored the need for theater ballistic missile defense systems. The commitment to producing and deploying new systems remains strong within the Administration and Congress. However, U.S. intelligence assessments now have placed low probability on an unauthorized, accidental, or intentional long-range attack on the U.S. The acquisition of a long-range ballistic missile capability by a potentially hostile third world nation, rather than the states of the former Soviet Union and People's Republic of China, is now viewed as the most serious long-range ballistic missile threat to the U.S. but is not expected to materialize in the near future. This environment

served as the foundation for Secretary Aspin's Bottom-Up Review (BUR) of DoD's BMD requirements which has provided the primary guidance for the long term direction of the BMDO.

BMD AND THE BOTTOM-UP REVIEW (BUR)

As announced by Secretary Aspin during the BUR, U.S. BMD efforts will continue to pursue TMD as the number one priority, to include specific improvements to existing systems and development and deployment of new advanced capability systems. Additional TMD programs will be supported to provide future improvements to the systems.

In recognition of the low probability of a long-range ballistic missile attack from the former Soviet Union or China but to preserve a hedge against the acquisition or indigenous development of a long-range ballistic missile capability by another potentially hostile nation, National Missile Defense (NMD) efforts will be focused on achieving and maintaining technical readiness to move into the system acquisition process. This will be accomplished by emphasizing risk reduction programs, key technologies, and activities to resolve critical technical issues. Brilliant Eyes (BE) will be continued as an acquisition program.

In recognition of changes in the nature of the ballistic missile threat and to provide for potential breakthroughs in BMD capability, advanced technologies will be supported at a lower level of effort than in previous years. Management and program infrastructure activities have been tailored to the revised BMD objectives.

Total BMDO funding for FY 1995-99 was announced at the time of the BUR as \$18 billion; with funding allocated to the TMD area at approximately \$12 billion; the NMD area at \$3 billion; including BE and BE support efforts, and follow-on technologies and research and support activities at a total of approximately \$3 billion. Since the announcement of the BUR, an OSD directive has removed \$1.1 billion from the FY 1995-99 BMDO program, resulting in a total FYDP funding of approximately \$17 billion, with the reduction being applied primarily to theater defense efforts.

THEATER MISSILE DEFENSE (TMD) PROGRAMS

Core TMD programs will consist of: an enhanced version of the PATRIOT air and missile defense system, PATRIOT Advanced Capability Level-3 (PAC-3); the sea-based AEGIS/Standard Missile Block IVA; and the land-based Theater High-Altitude Area Defense (THAAD) system, to include TMD Ground-Based Radar (GBR). Additional efforts will involve concept exploration activities for a potential sea-based Upper Tier, Corps SAM (which would

provide defense for maneuvering ground forces), and a boost phase interceptor/EXO system. A decision to proceed with further development of these advanced and longer-term systems has not been made.

CORE TMD PROGRAMS

PAC-3 - The PAC-2 was used with some success against the modified Iraqi Scud missiles during the Gulf War. The immediacy of the tactical ballistic missile threat strongly supports the rapid deployment of the PAC-3 which will provide greater lethality, range and accuracy, and more capability against tactical ballistic missiles. PAC-3 would include an improved radar and either an upgraded PATRIOT missile or a new hit-to-kill interceptor missile.

AEGIS/Standard Missile Block IVA - The Navy currently deploys AEGIS cruisers and a growing number of destroyers equipped with the Standard missile for air defense operations. The Block IVA program will capitalize on this existing infrastructure by fielding upgraded Standard missiles and software improvements to the AEGIS radar to provide a sea-based TMD capability. In some circumstances, a naval TMD capability could be in place within a regional conflict area to provide TMD protection for land-based assets before hostilities erupt or before land-based defenses can be transported to the theater.

THAAD - While modifications to present systems deal with many existing theater ballistic and cruise missile threats, the THAAD system allows multiple shot opportunities to intercept theater ballistic missile threats. Multiple shot opportunities, coupled with THAAD's longer range missile, allows threat carrying weapons of mass destruction to be neutralized at higher altitudes and longer ranges from the defended area than current generation defensive systems. When deployed with either a PAC-3 or AEGIS/SM2 Block IVA as a lower defensive tier, THAAD would represent the centerpiece of a highly effective integrated defense of critical areas.

Theater Missile Defense Ground-Based Radar (TMD-GBR) - The TMD-GBR meets an immediate requirement for a more capable wide-area-defense radar to provide surveillance and fire control support to the THAAD missile system and cueing support to lower tier systems such as PATRIOT. The TMD-GBR utilizes state-of-the-art radar technology to accomplish its required functions of threat attack early warning, threat type classification, interceptor fire control, external sensor cueing, and launch and impact point estimation. In particular TMD-GBR will be able to provide a capability to perform threat classification against theater tactical ballistic missiles, and then, kill assessment after intercept. In addition to providing fire control support for THAAD and cueing support to the lower tier, the TMD-GBR also will have a residual capability against air-breathing threats.

TMD C³ - Command, Control, and Communications (C³) systems provide the framework for synchronizing and integrating TMD operations. TMD C³ is considered an extension of the CINC's existing air defense command and control structure. The acquisition strategy is to take advantage of the large inventory of C³ assets already available in the theater and maximize the use of existing command center and communications capabilities. This approach minimizes costs and provides an enhanced early combat capability. Some modifications will be required to account for the unique features of TMD. The primary focus will be on interoperability and the free exchange of improved warning and surveillance data.

NEAR TERM INITIATIVES

Marine Corps TMD - The Marine Corps Tactical Missile Defense (TMD) Initiative will provide a basic TMD capability for the Marine Corps to sustain an interim point defense of vital assets in the amphibious operating area. This TMD capability will be accomplished through product improvements to the TPS-59 Radar and the Hawk missile system and through development of the Air Defense Communications Platform.

ADDITIONAL TMD CONCEPTS

Sea-Based Upper Tier - All sea-based concepts for higher altitude missile (upper tier) intercepts take advantage of the Vertical Launch System on naval combatants and offer very long-range intercept potential against theater ballistic missile threats when supported by space based sensors or other over-the-horizon sensor. The sea-based systems, which could be among the first deployed TMD systems in a regional crisis, could provide extensive area protection.

Corps SAM - This new mobile air and missile defense system would protect Army or Marine maneuver forces against short-range ballistic missiles and advanced cruise missiles fired from any direction. In addition, Corps SAM would be more transportable, mobile, and have more on-line missiles per battery than the PAC-3.

Boost Phase Intercept/EXO - Concepts which employ airborne systems for attack of missiles in either the boost or ascent phase, using either kinetic energy or directed energy kill mechanisms, offer the potential to destroy attacking missiles over enemy territory and would be effective particularly against advanced delivery systems.

International Programs - BMDO supports a cost sharing technology program with Israel which will lead to Israeli development of the Arrow TMD system. During the Gulf War, Israel was attacked by ballistic missiles. The need for a defense against this threat is urgent. With cooperation from the U.S., Israel is developing the Arrow system to counter this danger.

This type of burden sharing also yields a valuable technology exchange for use in U.S. core TMD programs.

National Missile Defense (NMD) PROGRAMS

The NMD acquisition program has been restructured into a technology readiness program. The readiness program for the NMD elements seeks to maintain the capability for contingency options to deploy defenses while increasing the capability of the individual elements in an orderly fashion. A series of Epochs, nominally three years each, will begin in FY 1995 to resolve critical issues in all of the NMD elements. The initial Epoch will provide the highest priority to improving the Exo-atmospheric Kinetic Kill Vehicle (EKV) on the Ground-Based Interceptor (GBI). Depending on the technical progress and the emerging threat, program plans will be adjusted in subsequent Epochs. The Brilliant Eyes (BE) program remains an acquisition program to maintain its potential as a "force multiplier" for TMD and for space surveillance in addition to its place in the NMD architecture.

Ground-Based Interceptor (GBI) - The GBI technology readiness program takes advantage of the previous BMDO work accomplished on the Exoatmospheric Reentry-vehicle Interceptor Subsystem (ERIS) programs, as well as on the Light Exoatmospheric Projectile (LEAP) and Space-Based Interceptor (SBI) programs. The most important GBI technical issue is the improvement of the engagement volume of the front end of the interceptor, called the Exoatmospheric Kinetic Kill Vehicle (EKV). The larger the engagement volume becomes, the easier it is for the surveillance and tracking sensors to place the GBI in the position for a successful intercept. The components that most impact the EKV engagement volume are the on-board seekers and divert propulsion. Two contractors will be funded to flight test their brassboard seekers as a prelude to later EKV flights before the end of the first Epoch.

Ground-Based Radar (GBR) - The GBR technology readiness program will build on the solid-state radar experience of the TMD-GBR (THAAD radar). The goal of the NMD-GBR is to prepare for integrated testing at USAKA with the GBI and space sensors in the early part of the next decade. The NMD-GBR contract with Raytheon was terminated. The remaining GBR technology work on the Solid State Array Demonstration and software improvements to support the tracking and discrimination of strategic ballistic missiles is reported under the TMD-GBR.

SPACE-BASED SENSORS/BE

A constellation of BE missile tracking and discrimination satellites could provide the earliest data on ballistic threats. This "time" advantage acts as a "force multiplier" by supporting

the maximum number of intercept opportunities against any ballistic threat. BE could provide an autonomous missile surveillance and tracking capability for a number of regions of TMD interest and can be cued by a national threat warning and attack assessment means to track ballistic missiles continuously after launch for TMD and NMD. The reduction in the BE budget forced an 18 month slip in the launch of the Demonstration/Validation (DEM/VAL) satellites (until 1998) and a downselect between the two competing contractors. The slipped schedule will support the TMD program and integrated NMD testing at the USAKA test range in a later phase of the NMD technology readiness program. Any program risk associated with the BE downselect will be reduced by the data which will be collected by the Midcourse Sensor Experiment.

ADVANCED TECHNOLOGY

To maintain the vitality of a BMD architecture over time, technologies must be developed to provide options for improvements to planned and deployed defenses, giving them new capabilities to respond to a range of needs. Among the most important of these needs are (1) capabilities to meet potentially straightforward countermeasures (2) threat evolution along the lines of early release submunitions that complicate an effective defense, (3) potential proliferation of theater ballistic missile systems that may increase the needed responsiveness of defensive systems, and (4) affordability and sustainability improvements as users gain operational experience.

To prepare to meet these future needs, advanced technology programs will invest in high leverage technologies that yield capabilities across a reduced set of thrusts which include kinetic energy weapon interceptors, advanced target sensors, directed energy weapons, and innovative science. The high potential payoffs include (1) boost and ascent phase TMD intercepts that assist in defeating tactics and warhead deployments designed to saturate midcourse and terminal tier defenses, (2) continuous coverage, to provide defensive capabilities against surprise attack or during the early stages of rapidly escalating conflicts, (3) exo- and endoatmospheric intercepts with a high probability of kill at lower cost thus expanding battle space, enlarging defended areas, and overcoming simple countermeasures, (4) multi-sensor detection and tracking that extends through the missile flight path, and (5) identification and discrimination that supports assured targeting.

SUMMARY

In summary, the BMD program is focusing on a balanced approach to obtaining needed capabilities for use by the warfighter as soon as prudently possible within affordability

constraints. BMDO is providing TMD material for fielding now and throughout the '90's. BMDO will also maintain technological readiness for NMD and support future missile defense options to support other critical active defense missions. In this way BMDO ensures that active missile defense is retained as an essential insurance policy for counterproliferation.

BIOGRAPHIES OF THE PRINCIPAL SPEAKERS

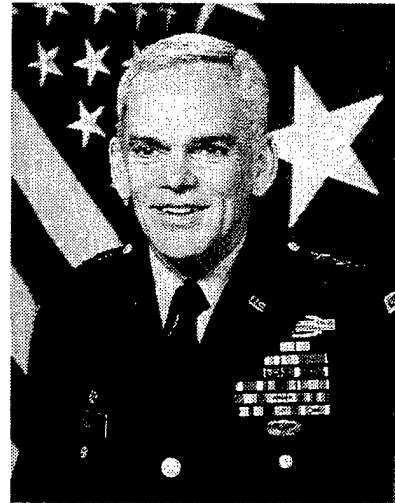
March 1994

Lieutenant General Malcolm R. O'Neill

United States Army

Lieutenant General Malcolm R. O'Neill is the Director of the Ballistic Missile Defense Organization, Department of Defense, Washington, D.C.

Prior to his appointment as Director, General O'Neill served as Acting Director and Deputy Director of BMDO. The general also served as the first Director of the Army Acquisition Corps, chartered to ensure a fully qualified civilian and military acquisition cadre for the Army. He also served as the Deputy for Program Assessment and International Cooperation, Office of the Assistant Secretary of the Army (Research, Development, and Acquisition), assisting in the management and execution of the Army's major hardware programs. He supervised all cooperative research and development programs and represented the Army at all NATO and Four Power international research and development fora.



He is the former Commander, U.S. Army Laboratory Command, the Army Materiel Command's (AMC) major subordinate command, managing the Army's seven corporate laboratories, the Adelphi Laboratory Center, and six Special Technology offices. Additionally, the general served as the AMC Deputy for planning and managing the Army materiel technology base, the Army Research Office and Field Assistance in Science and Technology program.

General O'Neill was previously Deputy Director for Programs and Systems and Director, Kinetic Energy Weapons, at BMDO. He was also Chief of Staff for the U.S. Army Missile Command (MICOM). He served as project manager for the Multiple Launch Rocket System at MICOM as well as the program manager for Strategic Fire Control Technology in the Defense Advanced Research Projects Agency; and the deputy program manager, NATO PATRIOT Management Office, Munich, Germany.

General O'Neill received a bachelor of science degree in physics from DePaul University and both a master of science degree and doctorate in physics from Rice University. His military education includes the Field Artillery Officer Basic Course, the Ordnance Officer Advanced Course, the Army Command and General Staff College, and the Army War College.

The general's awards and decorations include the Defense Distinguished Service Medal, the Defense Superior Service Medal, the Legion of Merit with three oak leaf clusters, the Bronze Star with the "V" device and three oak leaf clusters, the Meritorious Service Medal, the Air Medal, the Army Commendation Medal and the Purple Heart with oak leaf cluster. He also wears the Combat Infantryman Badge, the Parachutist Badge and the Ranger Tab.

General O'Neill and his wife, Judy, have two children, Bonnie and John. The general is a native of Chicago, Ill.

(Current as of December 1993)



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Dr. James Douglas Carlson

Dr. James Douglas Carlson is the General Manager (Acting), Ballistic Missile Defense Organization, Department of Defense, Washington, D.C. In this position, Dr. Carlson serves as the single focal point for acquisition matters within BMDO.

Dr. Carlson was born in Battle Creek, Mich., and raised in Chicago, Ill., where he obtained his primary schooling. He received his doctorate *Honoris Causa* from the Southeastern Institute of Technology, Huntsville, Ala., for work in technology advancement supporting the U.S. Army and the U.S. Air Force. He served six years with the U.S. Air Force in a variety of aircraft control and warning assignments ranging from Hawaii to the Distant Early Warning Line.



Dr. Carlson returned to government service on July 11, 1988, after a five-year period in private industry as corporate vice president of the Science Applications International Corporation. During this period he was manager of the Strategic Defense Intelligence Analysis Operation, reporting to the executive vice president and general manager, Engineering and Software Science Group in Huntsville, Ala.

He was also the director of the U.S. Army's Ballistic Missile Defense Advanced Technology Center from 1977 to 1983 with responsibility for the investigation and development of many of the technologies which formed the baseline for the current BMD program.

In an earlier assignment in the Washington area, he was the senior staff specialist in radar and signal processing in the Advanced Ballistic Missile Defense Agency (ABMDA) which had the mission to define and evolve advanced BMD concepts in support of the system developments which culminated in the SAFEGUARD development and subsequent Anti-Ballistic Missile Treaty.

Dr. Carlson was also employed with the Hughes Aircraft Company for 18 years. During this time, he was involved in research and development of advanced concepts such as solid state acoustics, microwave integrated circuits and monolithic digital circuit development with adjunct responsibilities in the development of subsystems for the AWACS, the Navy's point defense radar systems and the NPT control system.

Dr. Carlson is married to the former Leah Garrett of Hillsborough, Ohio. They have two daughters, Beth and Mari.

-end-

(Current as of June 1993)

February 17, 1994

Dr. Thomas G. Ward, Jr.
Director
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Dr. Ward was born in Cumberland, Maryland on 20 November 1940. He graduated with honors from the Johns Hopkins University in 1961 with a Bachelor of Engineering Science degree in Chemical Engineering. He earned his Doctor of Philosophy degree in Chemical Engineering from Princeton University in 1966. His minor while at Princeton was nuclear science.

Dr. Ward joined the Central Intelligence Agency in April, 1966 and served in a wide variety of technical management positions in CIA and on the Intelligence Community Staff for twenty-two years. He was assigned to his current position in August 1988.

As Director, Security, Intelligence and Countermeasures, Dr. Ward oversees the production of BMDO's major threat documents, support from the Intelligence Community, Red/Blue exchanges, countermeasures analysis and experiments, counterintelligence activities, and organizational, information and special security programs. He manages a staff of 20 senior civilian and military personnel and a budget of \$35 million per year.

Dr. Ward has two sons and daughter. His hobbies include musical performance, jogging and tennis.



Biography

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J. David Martin

Dr. J. David Martin is currently deputy for Strategic Relations in the Ballistic Missile Defense Organization (BMDO), Department of Defense, Washington, D.C. He is responsible for the international affairs aspect of the Ballistic Missile Defense Organization, BMDOs support for various arms control negotiations, public affairs, congressional liaison, and coordination with other DoD and government offices involved in BMD policy.

Dr. Martin was born in Delhi, N.Y. He received his bachelor of science in Engineering Mechanics from the Virginia Polytechnic Institute and his master of science and Ph.D. in Theoretical and Applied Mechanics from the University of Illinois.

From 1966 to 1974, Dr. Martin was involved in a number of ballistic missile defense research and development activities at the Cornell Aeronautical Laboratory in Buffalo, N.Y. For the next five years, he was a staff member in the Office of the Secretary of Defense. From 1974 to 1977 he was assigned to the Office for Strategic Forces and Arms Limitation. This assignment included two tours with the SALT II Delegation in Geneva. In 1977 he was named Director for Theater Nuclear Force Programs, also in the Office of the Secretary of Defense.

Before assuming duties at the BMDO, Dr. Martin served from 1979 through 1984 as Director of Nuclear Planning on the International Staff at NATO Headquarters in Brussels, Belgium. He was instrumental in implementing NATO's 1979 decision to deploy U.S. Pershing II and ground-launched cruise missiles in Europe and was responsible for discussing the rationale for the NATO decision (and for articulating NATO's nuclear policy) with a wide array of European parliamentarians, journalists, academics, and other influential public groups.

Dr. Martin is married to the former Virginia Carr from Champaign, Ill. They have two children, Paul and Catherine.

Current as of September 1993

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Central Michigan University - MA 1975, Public Administration

University of Utah - JD 1978 - Law

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1986 - Tax Law

The National Law Center, George Washington University - LL.M.
1989 - International Law

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Infantry Officer Basic Course - Fort Benning, 1971

Airborne - Fort Benning 1971

Judge Advocate General Corps' Basic Course - 1978

Judge Advocate General Corps' Graduate Course - 1981-1982

Command and General Staff College - 1985

ADMISSION TO BAR: U.S. Supreme Court and Oklahoma

ASSIGNMENTS:

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Weapons Platoon Leader, 25th Infantry Division 1974-75

Legal Assistance, Claims Officer, 21st Support Command 1978-79

Prosecutor, Chief International Law, 21st Support Command 1980-81

Deputy Staff Judge Advocate, National Training Center, Fort Irwin, CA 1982-85

Army Tax and Property Attorney, Contract Law Division, OTJAG, 1986-87

Staff Judge Advocate, White Sands Missile Range, NM 1989-92

Staff Judge Advocate, 2d Infantry Division, Republic of Korea, 1992-93

THOMAS W. JOHNSON

PROFESSIONAL EXPERIENCE

- LEGISLATIVE** Demonstrated success at providing full range of legislative liaison services for a complex and politicized program with a multi-billion dollar annual appropriation. Planned and implemented a legislative strategy to support the President's program and budget request. Strong, bipartisan working relationship with professional staff on all Congressional defense committees, as well as personal staff members. Experienced advisor on legislative and political issues to senior-level military and civilian decision makers. Previously, as legislative assistant to senior House Armed Services Committee member, successfully executed strategy to include legislative priorities in Defense Authorization Bill.
- MANAGEMENT** Successfully manage a team of ten civilian and military personnel in a high-pressure work environment. Created and staffed a new office, establishing roles, functions and procedures. Strong practical experience with applying Total Quality Management principles to enhance performance.
- PUBLIC AFFAIRS** Strong background in planning and executing public affairs programs that incorporate defense policy, high-technology and arms control themes. Produced numerous written and audio-visual materials that effectively explain Administration policies and programs. Developed press guidance, planned and executed media events and press conferences. Drafted opinion pieces for national-level newspapers and magazines, and coordinated news coverage for key legislative proposals for a Member of Congress.
- POLICY ANALYSIS** Hands on experience within the national security decision making process. Successfully served as interagency policy liaison for a Defense Agency. Provided senior decision-makers analysis of acquisition and policy issues related to missile defense programs. Central Intelligence Agency analyst responsible for comparative analyses and case studies of political instability and insurgency. Prepared intelligence studies for senior policy makers.
- BUDGET ANALYSIS** Experienced budget and financial analyst with background in Department of Navy programs. Served as primary budget analyst for multibillion dollar shipbuilding accounts. Effectively analyzed program performance to assure efficient use of appropriated funds.

COLONEL E. GORDON HAGEWOOD, USA

Colonel Hagewood is currently assigned as Director, Program Management and Corporate Strategy, Theater Missile Defense Initiative, Ballistic Missile Defense Organization.

Colonel Hagewood was commissioned in 1969 through the Reserve Officer Training Corps program at Georgia Institute of Technology, Atlanta, Georgia, where he earned a Bachelor of Science Degree in Industrial Management. He later received a Master of Science Degree in Operations Research and Systems Analysis from the Naval Postgraduate School, Monterey, California.

His military education includes the United States Army Air Defense Artillery (ADA) Basic and Advanced Courses, the Guided Missile System Staff Officer Course, Command and General Staff College, Defense System Management College Project Manager's Course, and the Industrial College of the Armed Forces.

Colonel Hagewood's significant military assignments include Civil Affairs Platoon Commander, Republic of Vietnam, 1971; Village Security Advisor, Republic of Vietnam, 1971 - 1972; Nike Hercules Battery Commander and Battalion Operations Officer, 3d Battalion, 43d ADA, Pedricktown, NJ, 1972 - 1974; 38th ADA Brigade Assistant Adjutant, Osan, Republic of Korea, 1976 - 1977; Operations Research Analyst, U.S. Army Missile Intelligence Agency, Redstone Arsenal, Alabama, 1979 - 1982; Executive Officer, 3d Battalion, 7th ADA (HAWK), Schweinfurt, Germany, 1983 - 1985; Inspector General, 32d AADCOR, Darmstadt, Germany, 1985 - 1987; Commander, 2d Battalion, 1st ADA (HAWK), Fort Bliss, Texas, 1987 - 1989; and Operations and Acquisition Analyst, OASA(RDA), the Pentagon, 1989 - 1991.

He is married to the former Patricia Lynn Scarborough, who also comes from a military family. The Hagewood's have two children, Douglas, age 20, and Lynn, age 16.

FRANCIS J. O'MEARA

Francis J. O'Meara is the Assistant General Manager for Strategic Defense (Acting), Ballistic Missile Defense Organization, Department of Defense, Washington, D.C. He is responsible for all activities associated with the program to defend the United States homeland against attack from weapons of mass destruction delivered by ballistic missiles and the program to extend this protection globally.



Born in Chicago, IL on Feb 28, 1934, Mr. O'Meara moved to Omaha, NE in 1940 and graduated from Omaha Holy Name High School in 1952. He earned a bachelor of science degree in mathematics and physics from Creighton University, Omaha, in 1956, a master of science degree in mathematics from the University of Pittsburgh, PA in 1960 and completed his doctoral courses in mathematics and statistics at the University of Nebraska, Lincoln, in August 1964. He is a July 1980 graduate of the Executive Leadership and Management Program of the Federal Executive Institute, Charlottesville, VA.

Mr. O'Meara began his professional career with the Westinghouse Electric Corporation as a junior engineer at their Aviation Gas Turbine Division, Kansas City, MO in June 1956. In March 1957, he transferred to the Westinghouse Research Laboratory, Pittsburgh, PA as a mathematician in the digital techniques section of the mathematics department.

In December 1959, Mr. O'Meara began thirty years of civilian service with Operations Analysis/Science and Research, Headquarters, Strategic Air Command (SAC) located at Offutt Air Force Base, NE. Starting as a GS-12 digital computer programmer, he was certified as an Operations Research Analyst in November 1961 and spent the next 19 years in the Weapon Systems, Plans and Tactics, Operational Capability and Technology Assessment Divisions. During this period, Mr. O'Meara advanced to the grade of GS-15 and gained extensive experience in computer modeling and simulation, wargaming, nuclear/conventional weapons and effects, bombing and navigation, reliability and accuracy, electronic countermeasures, and operational testing and evaluation.

Mr. O'Meara was appointed to the senior executive service in June 1980 and assigned as Chief, Technology Assessment Division, Science and Research. In March 1982, he was reassigned as Chief, Operations Analysis Division, a post he held until he was appointed as Chief, Science and Research in November 1986. In April 1987, he took on the additional duties of Scientific and Technical Advisor to the Joint Strategic Target Planning Staff (JSTPS). Mr. O'Meara was selected to head the newly established Office of the Chief Scientist in the SAC Command Section in January 1990. As a result of these assignments, he developed expertise in many aspects of strategic offense including operational requirements, force structure, joint plans and tactics, readiness and sustainability, operational capability and effectiveness, survivability and vulnerability.

Colonel Gary E. Payton

Colonel Gary E. Payton is the Deputy for Technology, Ballistic Missile Defense Organization, Department of Defense, Washington, DC.

Colonel Payton received a bachelor of science degree in astronautical engineering from the U.S. Air Force Academy in 1971. He earned his master of science degree in aeronautical and astronautical engineering from Purdue University in 1972. He is also a graduate of Squadron Officers School, Air Command and Staff School and Air War College.

The colonel attended pilot training at Craig Air Force Base, Alabama, and remained there as an instructor pilot until 1976. He was then assigned to Cape Canaveral, Florida, where he served as a space-launch controller and was responsible for the successful pre-launch processing, countdown, and the launch of several military satellites on the Titan, Atlas, and Delta launch vehicles. In 1980, he served in the Systems Program Office at Los Angeles Air Force Base, California, for the first military spacecraft to launch on NASA's Space Shuttle.

In 1983, the U.S. Air Force selected Colonel Payton to serve as the first military Payload Specialist to fly on the Space Shuttle launching in January 1985 aboard Discovery on STS-51C. In 1986, he transferred to the Pentagon for assignment with BMDO, serving first as the Executive Officer to the Director, then Lieutenant General James Abrahamson, and then as Associate Deputy for Technology. He attended Air War College in 1990. From 1991 to 1993 he served as Director of Sensors and Surveillance for Theater Missile Defense. He assumed his present position on December 6, 1993.

Colonel Payton has more than 1100 flying hours in Air Force and NASA aircraft.

His military decorations include the Defense Superior Service Medal, Meritorious Service Medal with three oak leaf clusters, Air Force Commendation Medal, the Joint Service Achievement Medal, and the NASA Spaceflight Medal.

Colonel Payton is married to the former Sue Campbell of Urbana, Illinois, and they have one daughter, Courtney.



Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

MAJOR GENERAL GARRY A. SCHNELZER

Major General Garry A. Schnelzer represents the secretary of the Air Force as the program executive officer for the acquisition of space programs, the Pentagon, Washington, D.C.

General Schnelzer was born Oct. 26, 1942, in Toledo, Ohio. He earned a bachelor of science degree from Bowling Green State University in 1964, a master of science degree through the Air Force Institute of Technology in 1972, and a master of military arts and sciences degree from Army Command and General Staff College in 1977. The general completed Squadron Officer School in 1969 and National War College in 1985.

He was commissioned through the Reserve Officer Training Corps program as a distinguished graduate in July 1964. He completed pilot training at Laughlin Air Force Base, Texas, in October 1965. His initial flying assignment involved photographic mapping missions as a C-130 pilot in South America and Africa.



During 1967 he served in Southeast Asia as a forward air controller. After returning to the United States in January 1968, the general was assigned to a reconnaissance squadron at MacDill Air Force Base, Fla., and later moved with the unit to Homestead Air Force Base, Fla. In 1972 the general was assigned to the Air Force Cambridge Research Laboratories, Hanscom Air Force Base, Mass. He served as a research physicist and was awarded the Air Force Research and Development Award in 1975 for his work on inertial guidance systems.

After completing the Army Command and General Staff College in June 1977, General Schnelzer returned to flying duties as a C-130 pilot at Dyess Air Force Base, Texas. In August 1980 General Schnelzer was assigned to the Air Force Space Division (now Headquarters Space and Missile Center), Los Angeles Air Force Base, Calif., where he served as a program manager, initially for the space-based radar program, and later for the anti-satellite weapon system.

Upon completion of National War College in June 1985, he became director, Sensors Office, Strategic Defense Initiative Organization, Washington, D.C. He was the organization's deputy for technology from May 1987 until June 1988, when he became deputy for systems. In June 1989 he became deputy director (acting) for the organization. He was appointed special assistant for launch matters at Space Systems Division headquarters in September 1989. He assumed his current position in February 1990.

The general is a command pilot with more than 3,300 flying hours. His military awards and decorations include the Defense Distinguished Service Medal, Distinguished Flying Cross with oak leaf cluster, Meritorious Service Medal with two oak leaf clusters, Air Medal with 17 oak leaf clusters, Vietnam Service Medal with two service stars, Republic of Vietnam Gallantry Cross with Palm, and Republic of Vietnam Campaign Medal.

He was promoted to major general July 2, 1992, with same date of rank.

General Schnelzer is married to the former Helen Morrison of Melbourne, Australia. They have two children, Douglas and Heather.

DAVID M. ALTWEGG

Mr. David M. Altwegg is the Deputy, Program Executive Officer, Theater Air Defense. Prior to his current assignment, Mr. Altwegg served as the Commander, Weapons and Combat Systems Directorate, Naval Sea Systems Command. Prior to this assignment, Mr. Altwegg served as the NAVSEA Deputy Chief Engineer for Design and Manufacturing Quality. Previously he spent a year as a Defense Advisor following his retirement from active duty as a Rear Admiral in 1985.

While on active duty, he sailed as Division Officer on USS ORISKANY (CV-34); Aide and Flag Lieutenant to Commander, Cruiser Division One; Operations Officer and Navigator, USS CONE (DD-866); Commissioning Weapons Officer of USS BAINBRIDGE (CGN-25); Executive Officer (USS DEWEY (DDG-45). His at-sea commands included USS MAHAN (DDG-42) and USS HORNE (CG-30).

Service ashore included assignments on the staff of COMCRUDESPAC and Military Assistant to the Director, Defense Security Assistance Agency. He commanded the Naval Ship Weapons System Engineering Station, Port Hueneme, prior to his selection to flag rank.

As a flag officer he served as Commander, Pacific Missile Test Center, Point Mugu, CA; Project Manager, ASW Systems Project Office; Director, Security Assistance Division (OP-63); Commander, Cruiser-Destroyer Group-Two and ADCNO (Surface Warfare).

Mr. Altwegg is a graduate of the U. S. Naval Academy, class of 1952. He is a graduate of the U. S. Naval Postgraduate School and MIT where he earned a Master of Science degree. He also is a graduate of the Naval Nuclear Power Program and the Industrial College of the Armed Forces (ICAF).

His decorations include: Legion of Merit (2 gold stars); Bronze Star with Combat V; Meritorious Service Medal; Navy Commendation Medal and Vietnamese Distinguished Service Order.

Mr. Altwegg and his wife Rosina reside in Alexandria, Virginia. Their daughter, Shauna, is a Washington, D. C. attorney.

Brigadier General Richard A. Black

Brigadier General Black was born in Wenatchee, Washington. Upon graduation from the United States Military Academy, he was commissioned a Second Lieutenant and awarded a Bachelor of Science Degree. He holds a Master of Science Degree from the University of California at Davis in Physics and a Masters in Business Administration from Boston University. His military education includes completion of the Basic and Advanced courses at the Air Defense Artillery School, the United States Army Command and General Staff College, Defense Systems Management College, Program Management Course, and Industrial College of the Armed Forces.

Brigadier General Black's recent assignments include: Project Manager, Corps Surface-to-Air Missile, Program Executive Office for Missile Defense, Huntsville, Alabama, Project Manager, Follow-On To Lance, Program Executive Office for Fire Support and Product Manager, Patriot Anti-Tactical Missile, Program Executive Office for Air Defense, United States Army Missile Command, Redstone Arsenal, Alabama. He has also served as Commander, 4th Training Battalion, United States Army Training Center and Commander, Battery C, 4th Battalion, 1st ADA Training Brigade, Fort Bliss, Texas. Brigadier General Black has also held a number of Joint and Overseas assignments in Vietnam and Germany.

Awards and decorations received by Brigadier General Black include the Legion of Merit, the Bronze Star Medal, the Meritorious Service Medal with two Oak Leaf Clusters, the Army Commendation Medal with Oak Leaf Cluster, the Combat Infantryman Badge, the Ranger Tab, and the Army Staff Identification Badge.

He and his wife Mary, have three children: Heather, Katherine, and Daniel.

STEPHEN M. MOSS
Director, Small and Disadvantaged Business Utilization
Ballistic Missile Defense Organization

Stephen M. ("Steve") Moss joined the Strategic Defense Initiative Organization (SDIO), now known as the Ballistic Missile Defense Organization (BMDO), in January 1986. He has served as Director of Small and Disadvantaged Business Utilization (SADBU) since November 1987 and as Assistant Director for Contract Policy and Special Projects since February 1987. In his capacity as SADBU, he is a member of the Director, BMDO's special staff and serves as principal advisor to the Director on issues involving small business, small disadvantaged business, women-owned business, and historically Black colleges and universities and minority institutions. In February 1991, Mr. Moss was appointed by the Deputy Assistant Secretary of Defense (Procurement) as Chairman of the Defense Acquisition Regulatory (DAR) System Small Business Committee and served in that capacity for over a year. As Assistant Director for Contract Policy and Special Projects, he heads the division responsible for BMD contract policy, serves as a contracting officer, and supervises three contracting professionals. From January 1986 through January 1987, Mr. Moss served as Acting Deputy Director of Contracts in the newly established Contracts Directorate. During his tenure at BMDO, he has received numerous outstanding performance ratings and performance awards.

From August 1979 to January 1986, Mr. Moss was a senior procurement analyst with the Naval Supply Systems Command, with contract management responsibilities over the Navy Field Contracting System. From July 1974 to July 1979, he was a contract specialist with the Naval Air Systems Command and negotiated contracts for a number of Navy airframe and missile programs, including the LAMPS MK III, the A-6, the Shrike Missile, and the Cruise Missile. From November 1973 to July 1974, Mr. Moss purchased capital and capital related equipment and software, engineering and maintenance services, and other supplies and services for General Dynamics Corporation, Electric Boat Division. While serving in the U.S. Air Force from 1969 to 1973, he purchased, by means of formal advertising or negotiation, construction and architect-engineer services, education, transportation, mortuary, chaplain, and other miscellaneous services at the base procurement level.

Born in Boston, Massachusetts, Mr. Moss graduated cum laude from the University of Massachusetts at Amherst with Senior Honors in Economics. He received his master's degree in Procurement and Contracting from The George Washington University. He is married and has two daughters.

December 1993

The Worldwide Missile Threat

Dr Thomas Ward
Ballistic Missile Defense Organization

Unclassified

34301506 942

Ballistic Missile Proliferation - A Global Problem

Argentina (P,S)
 Brazil (P,S)
 China (P,E,S)
 Eastern Europe (S)
 Egypt (P,E,S)
 India (P,S)
 Indonesia (P,S)
 Iran (P,S)
 Iraq (P,S)
 Israel (P,E,S)
 Japan (S)

Libya (P)
 North Korea (P,E,S)
 Pacific Rim Nations (S)
 Pakistan (P)
 South Africa (P,S)
 South Korea (P,S)
 Former Soviet Union (P,E,S)
 Syria (P)
 Taiwan (P,S)
 Western Europe (P,S)

Other nations like Yemen and Saudi Arabia are concerned for their willingness to purchase complete missile systems

P = Having or establishing production capability
 E = Exporting ballistic missile systems or subsystems
 S = Having technologies sought by nations seeking to establish a ballistic missile production capability

Unclassified

34301501 942

DCI's Congressional Testimony 25 January 1994

"Ballistic Missiles are becoming the weapon of choice for nations otherwise unable to strike their enemies at long range. Today there are 25 countries, many hostile to our interests, . . . that are developing nuclear, biological, or chemical weapons . . . some of these countries may place little stock in the classic theory of deterrence which kept the cold war from becoming a hot one . . ."

Threat Overview

- The Former Soviet Union (FSU) will continue to be the primary threat to our national survival for the foreseeable future
- China has and will maintain a limited strike capability against the US
- No Rest-of-World (ROW) country is likely to develop a strike capability against CONUS in the next 10-15 years, but . . .
- The proliferation of weapons of mass destruction (WMD), missiles (ballistic and cruise), and production technology to ROW countries is one of the greatest problems facing the US

Unclassified

343015/08 942

Former Soviet Union

- Primary threat to our national survival
- Reduction in missile forces underway, but modernization continues
- Currently, there are nuclear-armed missiles in Russia, Ukraine, Belarus and Kazakhstan
- Political future far from certain
 - Fascism?
 - Hyperinflation?
 - Ethnic warfare?
- Control of nuclear weapons a major concern
- Despite agreement, future of Ukrainian nuclear forces still not settled

Unclassified

343015/09 942

Russian/CIS Strategic Forces June 1992 Agreement

(Start II)

ICBMs

SS-18/4/5/6

SS-24/1

SS-24/2

SS-25

Future missile(s)

RVs

0

0

0

x

x

SLBMs

SS-N-18

SS-N-20

SS-N-23

Others

1750 (sublimit)

Bombers

Bear H (6 ALCM)

Blackjack (12 ALCM)

Totals

3500 (max)

Unclassified

343015/16 942

China

- Small ICBM force, but modernization ongoing
- Missile marketing efforts may continue
 - M-11 (300 km)
 - M-9 (600 km)
- May continue to supply production technology
- Provided CSS-2 IRBMs (3,000 km) to Saudi Arabia in 1989

Unclassified

343015/10 942

ROW

- No ICBM threat to CONUS in the next 10-15 years, but . . .
- US forces and allies at risk to attack by TBMs
- Many countries have missile programs: India, Pakistan, Iran, Iraq, Libya, North Korea
- North Korea willing to sell complete missiles
- Many have nuclear weapon programs

North Korea

"North Korea's attempt to develop a clandestine nuclear capability, together with its military preparations and arms transfers to other countries, threatens its neighbors and our fundamental national security interests.

We believe that North Korea could already have enough plutonium for at least one nuclear weapon.

... (North Korea's) missiles, including those in the 1000 km range, . . . can be made capable of carrying nuclear, chemical or biological weapons."

DCI 25 January 1994

Unclassified

343015/12 942

Trends in Ballistic Missile Proliferation

Phase 1

- Ranges < 600 kilometers
- Accuracies of about 1-2 kilometers
- Old technology with some modest upgrades to existing designs
- Limited military value, good terror weapons
- Proliferating since 1970s
- Scuds, Hatt, Prithvi, unguided rockets

Phase 2

- Range 600 - 2,000 kilometers
- Accuracies of about 1-2 kilometers
- Only a few in development: Condor, No Dong, Agni

Phase 3

- Range > 2,000 kilometers
- Development centered mainly in China

Unclassified

343015/02 942

Ballistic Missile Proliferation

Obstacles to acquiring missiles and/or technology

- **Missile technology control regime**
- **Heightened international concern over the spread of weapons of mass destruction**

Obstacles to stemming technology flow

- **Technology is widespread**
- **Reverse engineering**
- **Technology is multipurpose**
- **Pooling of resources**
- **MTCR does not include several key suppliers**
- **Lucrative trade**

Unclassified

343015/04 942

Avenues of Ballistic Missile Proliferation

- Purchase of operational systems
- Upgrade of existing missile designs
 - Conversion of SAMs to SSMs
 - Conversion of SLVs and sounding rockets to SSMs
- Indigenous production

Scud

• Most widely proliferated missile in the world

- Iraq
- Iran
- North Korea
- Syria
- Libya
- Egypt . . .

• Russia selling terminal guided warhead for it

• North Korea selling its own Scuds (B & C) to anyone

Additional Threats in Rest-of-World Countries

- **Aerodynamic threat is growing**
- **Airlaunched Tactical Antiship Missiles and Cruise Missiles**
 - AM 39 (Exocet)
 - Harpoon
- **Ground and Sea Launched Tactical Antiship and Cruise Missiles**
 - CSS-N-1 (SY-1)
 - SS-N-2b, c, d
 - SSC-1b
 - SSC-3
 - HY-1
 - HY-2
 - Exocet MM-38, MM-40
 - Gabriel MK 2
 - OTOMAT MK 1,2
- **Unguided Single and Multiple Rocket Systems**
 - Frog-7

Unclassified

343015/15 942

Additional Threats in Rest-of-World Countries (Cont'd)

- **RPVs and Drones are a growing concern**
- **Many countries - France, Russia, China, Israel - are producing RPVs**
- **Easily converted to carry chemical or biological agents**
- **Ability to produce, gives the technology base for producing cruise missiles**

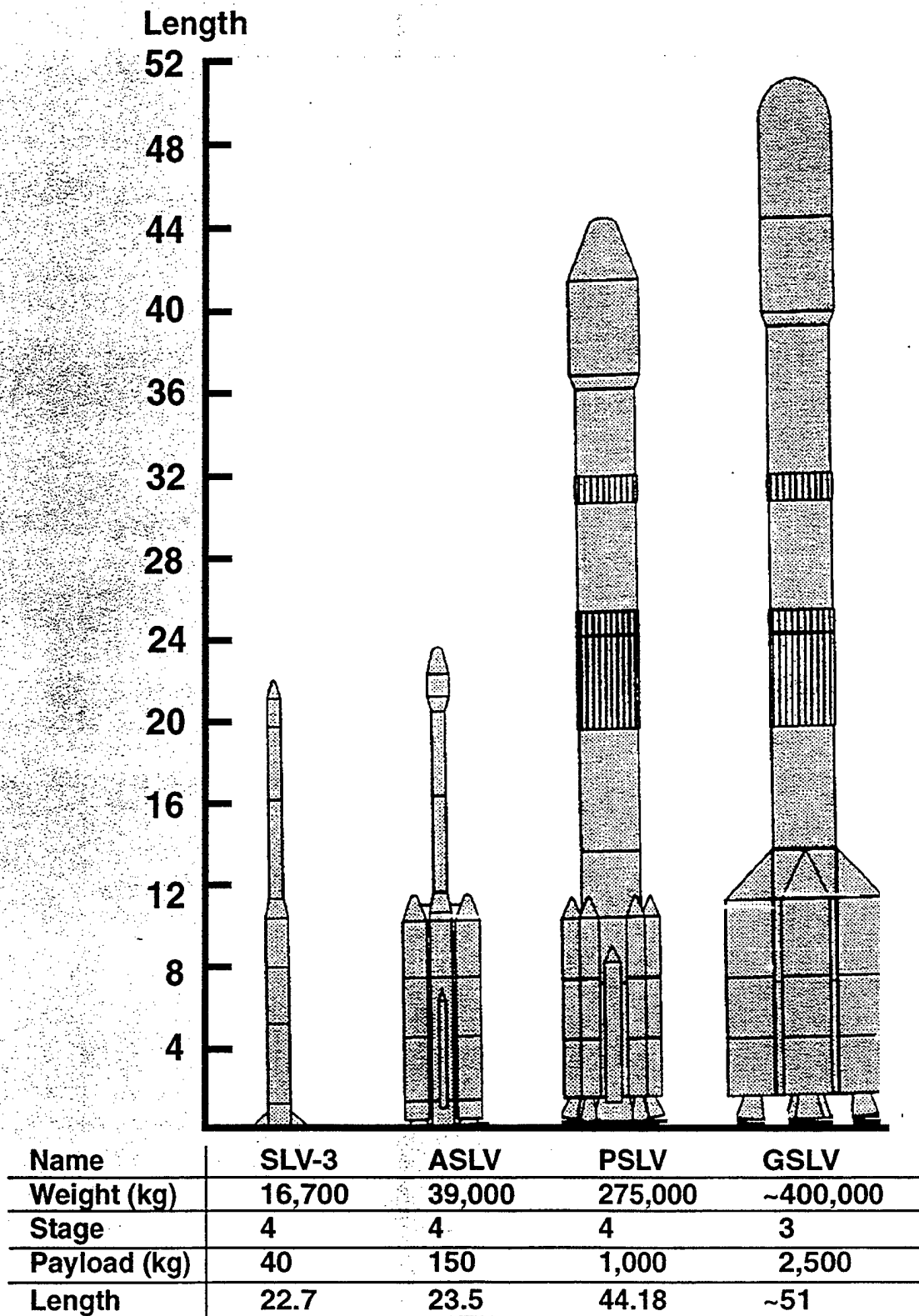
Outlook

- Development programs currently underway can be slowed but not stopped
- Additional countries may modify existing systems for extended range
- Cover companies will be used increasingly to circumvent export controls
- Third World nations will likely transfer technology between themselves
- Some Third World nations may export missiles once indigenous production begins

Unclassified

343015/05 942

Indian Satellite Launch Vehicles



BALLISTIC MISSILE DEFENSE

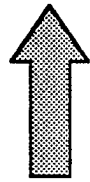
Advance Planning Briefing For Industry International Participation

BALLISTIC *MISSILE* *DEFENSE* ORGANIZATION

March 1994

**Dr. J. David Martin
Deputy For Strategic Relations
Ballistic Missile Defense Organization**

SCOPE OF PRESENTATION



- **Administration And Congressional Perspectives**
- **International Perspective**
- **Participation And The U.S. Acquisition Cycle**
- **Resources Available For Facilitating Participation**
- **Summary**

INTERNATIONAL PARTICIPATION OBJECTIVES

- **Strengthen U.S. / Allied Mutual Security Commitments**
- **Support U.S. / Allied Counterproliferation Policies And Strategies**
- **Help Provide Protection For U.S. / Allied Forces**
- **Underpin U.S. / Allied Freedom Of Action In Crisis Situations**
- **Access Foreign Innovative Technologies, Systems And Unique Capabilities, e.g., Penaid's Design**
- **Facilitate Military Ties To Define Common Requirements, Help Ensure Interoperability, etc.**

U.S. POLICY ON INTERNATIONAL PARTICIPATION IN TMD PROGRAMS

FY 94 National Defense Authorization Act

- **Allied Nations Are Encouraged To Participate In, Or Increase Participation In, Cooperative U.S. TMD Programs, Particularly Those Allied Nations That Would Benefit The Most From Deployment Of TMD Systems**
- **The U.S. Is Encouraged To Participate In Cooperative TMD Efforts Of Allied Nations As Such Programs Emerge**

U.S. CONGRESS FY 94 DEFENSE AUTHORIZATION ACT

Language On Cooperation With Allies On Development Of TMD (Sec 242)

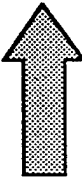
- Findings
 - Deployed U.S. TMD Systems Can Contribute To The Security Of Other Nations
 - Cost Of Developing Such Systems Will Be Several Tens Of Billions Of Dollars
 - Cooperative TMD Development And Deployment May Reduce Financial Burden And Provide Technical Expertise
 - Allies Are Unlikely To Cooperate Unless There Is Meaningful Involvement Including R&D And Production
- Plans And Reports
 - DoD Should Develop A Plan To Coordinate U.S. TMD Programs With Allies To Avoid Duplication, Increase Interoperability, And Reduce Cost
 - A Report Of The Plan Will Have Actions Taken To Implement The Plan, Status Of Discussions With Allies, And Status Of Contributions By Allies

**U.S. CONGRESS FY 94
DEFENSE AUTHORIZATION ACT (Cont'd)**

*Language On Cooperation With Allies
On Development Of TMD (Sec 242) (Cont'd)*

- Restrictions On Funds
 - Not More Than 80% Of Total BMD Funds May Be Obligated Until
 - Report Is Submitted To Congress
 - President Certifies That A Proposal Concerning Matters In The Report Has Been Formally Submitted To NATO Member Nations, Japan, Israel, And South Korea

SCOPE OF PRESENTATION

- Administration And Congressional Perspectives
-  International Perspective
- Participation And The U.S. Acquisition Cycle
- Resources Available For Facilitating Participation
- Summary

**BALLISTIC
MISSILE
DEFENSE
ORGANIZATION**

**THEATER MISSILE DEFENSE
DIALOGUE WITH FRIENDS AND ALLIES**

Bilateral Discussions

- U.K. • Germany • Canada • Japan • Russia
- Israel • France • Netherlands • Italy

NATO

- Senior Political Military Group On Proliferation (SGP)
- Senior Defense Group On Proliferation (DGP)
- Extended Air Defense / Theater Defense Ad Hoc Working Group (AHWG)
- AGARD AAS 38 Study: NATO BMD In Post Cold War Era
- NIAG Subgroup 37 Study: Technology Forecast Post 2000

Japan

- Security Subcommittee (SSC) TMD Working Group
- Systems And Technology Forum (S&TF)

Russia

- Strategic Stability Working Group (TMD / EW Cooperation Subgroup)

Other Opportunities

- Annual Theater Missile Defense Conference
- Advance Planning Briefing For Industry
- Various Multinational Studies

U.S. INITIATIVES: NATO

*Dr. John Deutch, Under Secretary Of Defense
(Acquisition And Technology)*

- "... A Renewal Of The Spirit Of Armaments Cooperation",
To Include TMD Inter Alia Considering
 - Need For Interoperability Of Missile Defenses
 - Potential For Cooperative R&D On BMD Technology
 - Cooperative Development, Production Or Deployment
Of TMD Interceptors, Sensors, Or BM / C3
 - Sharing Space Based Sensor And Other Early Warning
Information To Improve Effectiveness Of TMD

CNAD, April 1993

Secretary Of Defense Aspin

- "... U.S. Support For TMD Is In Line With The Alliance
Strategic Concept Which Recognizes Missile Defenses Are
A Part Of The Solution To The Risks Posed By
Proliferation.... We Also Now Believe It Is Time To Begin
Discussions With NATO Allies Collectively On The
Potential For Cooperation In TMD Within NATO."

NPG, May 1993

pj-37570C / 012494

U.S. INITIATIVES: NATO (Cont'd)

- **Dr. John Deutch, Under Secretary Of Defense (Acquisition And Technology) (CNAD, October 1993)**
 - **"Establish A Working Group On TMD"**
 - **Urgent Requirement For TMD Capabilities**
 - **Initial Focus On What Can Be Done With Improvements To Current Systems**
 - **Longer Term Focus On "Qualitatively New Capabilities"**
- **President Clinton, (NATO Summit, 10 JAN 94)**
 - **"We Must Also Ready This Alliance To Meet New Threats, Notably From Weapons Of Mass Destruction And The Means Of Delivering Them"**

U.S. INITIATIVES: JAPAN

- Japan Is Considering TMD Capability And Pursuing Advanced Air Defense Systems
 - Producing PATRIOT PAC-1 Under License; Preparing To Produce / Deploy PAC-2
- Exploring Feasibility Of Future SAM As Possible I-HAWK Replacement
- Deploying AEGIS Ships And Acquiring AWACS
- Policy / Legal Considerations, e.g., Outer Space Treaty, Prohibitions On Collective Defense And Export Of Military Technology
- September 1993 USD(A) John Deutch Presented "Technology-For-Technology Initiative" To Government Of Japan
 - U.S. Will Sell Any System Necessary For Defense Of Japan
- If Japan Desires Cooperative Production Effort, Access To U.S. Defense Technology Flow Must Be Balanced By Japanese Dual-use Technology Flow To U.S.
- U.S. - Japan Agreed To Joint TMD Working Group, Initial Meeting Held 15 DEC 93
 - Information Briefs Provided Solid Basis For Continuing Discussions

UNITED KINGDOM

- **Participation In BMDO Programs Has Been Extensive**
 - **Cooperative R&D Joint Trials And Experiments**
 - **Contracts**
 - **Information Exchange**
- **Government Will Initiate, In April 1994, An 18-month Study On BMD To Define "Staff Target"**

FRANCE

- Two MOAs On BMD Related Technologies In Place
- French DGA Has Commissioned Two Recent Industry Studies In Missile Defense
- France Active In Numerous NATO TMD Activities (e.g., AGARD AAS-38, CNAD Ad Hoc Working Groups)
- Several French Contracts Ongoing

ISRAEL

- **U.S. / Israeli Programs Account For Over 55% Of The Contract Value For Cooperative R&D In BMDO**
- **Arrow / ACES Development Ongoing, Will Reach EMD In FY 96**
- **Arrow Deployability Program Under Consideration**
- **Boost Phase Intercept Study Will Be Completed In July 1994**
- **Hypervelocity Launcher Program Cancelled In FY 94**
- **Israeli Test Bed Up And Running**
 - **Man-In-The-Loop Experiments Underway**
 - **Full Cooperation In Joint Experiments**

RUSSIA

- **Global Protection System (GPS)**
 - **Reorientation Of GPALS To Theater Missile Defense In May 1993 Prompted Administration Review Of GPS**
 - **In December 1993, U.S. Government Advised Its Friends And Allies That Because Of Reorientation Of Its Ballistic Missile Defense Program From GPALS To Theater Missile Defense, The U.S. Would Now Pursue Regional Approaches To Missile Defenses**
- **Active Discussions In Government, Industrial, And Academic Communities Have Resulted In Several Innovative Technology Efforts, e.g., Hall Thrusters, Refractory And Monocrystal Structural Materials, Photovoltaics, Energetic Materials**
- **U.S. Remains Interested In Exploring Advanced Technology Cooperation Opportunities With Russia In The Missile Defense Area**

SCOPE OF PRESENTATION

- Administration And Congressional Perspectives
- International Perspective
- Participation And The U.S. Acquisition Cycle
- Resources Available For Facilitating Participation
- Summary





TMD PARTICIPATION: TODAY'S ENVIRONMENT

- **Allied And Friendly Nations Are More Aware Of Their Vulnerability To Ballistic Missiles**
- **Scope And Complexity Of ATBM Programs Argue For Combining Best Available Technologies**
- **Successful Tests And Technology Demonstrations Will Continue To Confirm Feasibility And Expand Interest And Participation**
- **Refocus Of U.S. Ballistic Missile Defense Program From Global, Space Based Orientation To Theater Missile Defense**
 - **Addresses More Immediate Requirements**
 - **May Afford A More Favorable Political Climate**
- **Declining Defense Budgets Will Promote More Cost Shared Joint Programs, Which In Turn, Will Expand Work Sharing And Opportunities For Domestic And Foreign Industrial Participation**

BALLISTIC
MISSILE
DEFENSE
ORGANIZATION

APPROACH FOR ALLIED PARTICIPATION

Time	Activity
Now	<ul style="list-style-type: none"> Identify And Consolidate Current Studies, Plans, Programs
<div> <div>  </div> <div> Near Term </div> </div>	<ul style="list-style-type: none"> Pursue Improved Early Warning And Tracking Capability Pursue Improved Communications / Data Transmission Improve / Develop Lower Tier Defenses
<div> <div>  </div> <div> Longer Term </div> </div>	<ul style="list-style-type: none"> Expand / Improve Lower Tier Defenses Develop / Deploy Area Defense Capability

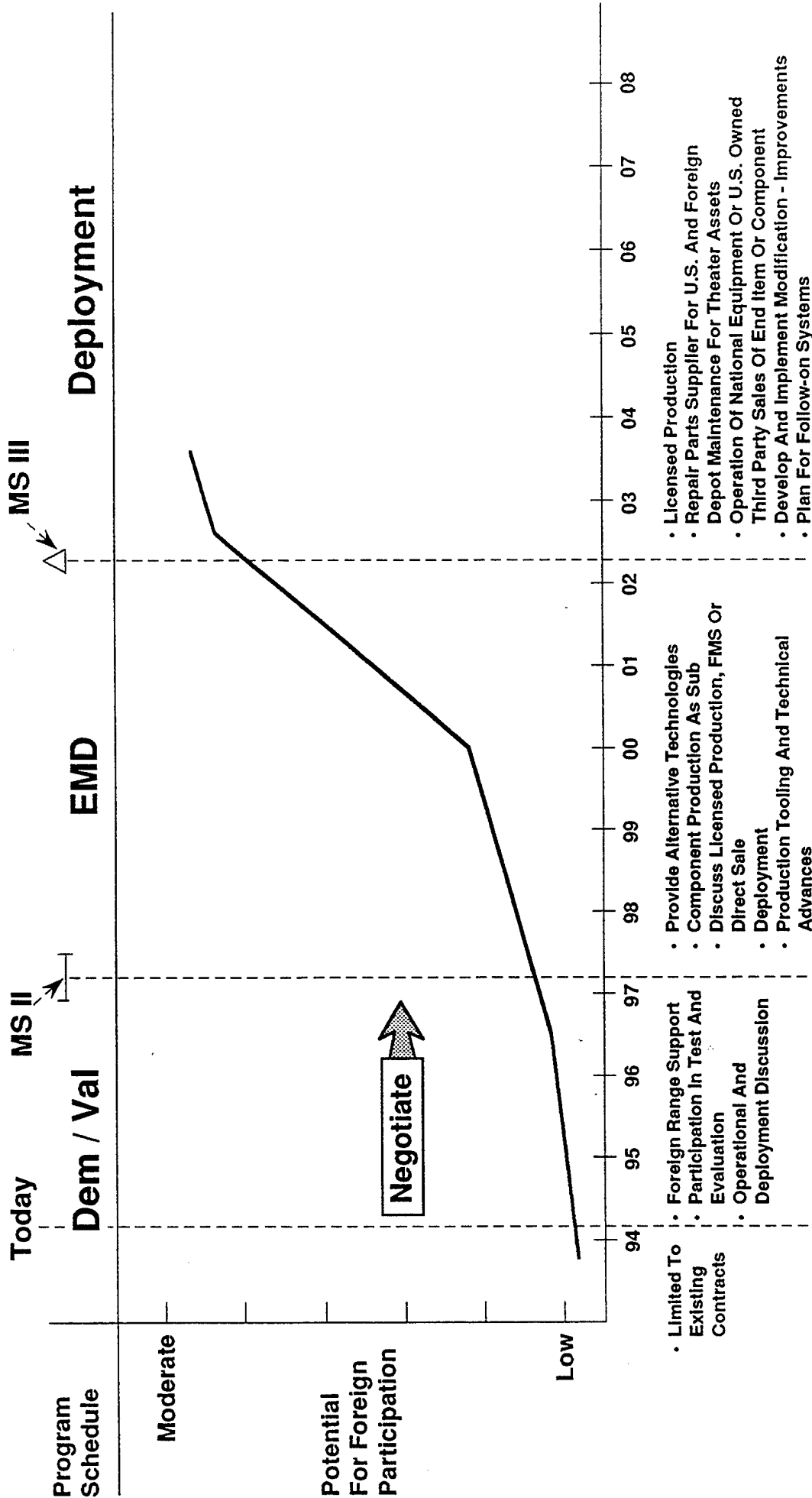
"Build Upon / Improve Existing Capabilities"

- Incremental Enhancement
- Interoperability

"Qualitative New Capability"

"Defense-in-Depth"

COOPERATIVE OPPORTUNITIES



Risk Mitigation Or Technical Alternatives

SCOPE OF PRESENTATION

- Administration And Congressional Perspectives
- International Perspective
- Opportunities For Participation
- Resources Available For Facilitating Participation
- Summary



FOREIGN GOVERNMENT INTERLOCUTORS IN WASHINGTON

- United Kingdom
 - Mr. Geoff Owen
 - Mr. Graham Gasston
- Germany
 - Mr. Hans-Juergen Paetzold
- Israel
 - Colonel Shmuel Yachin
 - Dr. Aron Moss
- Italy
 - Lieutenant Colonel Mario Ottone
- Japan
 - Mr. Kazuto Tsutsui
- France
 - Colonel Patrick Bellouard
 - Captain Marc Esteve

DIRECTORATE FOR INTERNATIONAL AFFAIRS

- **Mr. Charles Randow, Director**
- **Country Managers**
 - **United Kingdom (Mr. Paul Koskey)**
 - **Germany (Ms. Deborah Vinson)**
 - **Israel (Lt Col Mauro Farinelli)**
 - **Italy (Ms. Deborah Vinson)**
 - **Japan (CDR Jim Cooper)**
 - **France (Ms. Deborah Vinson)**
 - **Canada (Mr. Mike Kamin)**
 - **Russia (Mr. Mike Kamin)**
 - **NATO (Ms. Deborah Vinson)**
- **Expertise In Cooperative Programs, International Agreements, Foreign Contracting, Export Licensing, Technology Transfer, Technology Security, Arms Control, And Applicable Treaties**

Telephone: (703) 693-1080

SCOPE OF PRESENTATION

- Administration And Congressional Perspectives
- International Perspective
- Participation And The U.S. Acquisition Cycle
- Resources Available For Facilitating Participation
- Summary



SUMMARY

- **It Is U.S. Policy To Establish Meaningful Cooperative Programs With Allied Nations**
- **There Are Many TMD Initiatives Worldwide And Many Opportunities For Participation**
- **There Are BMDO Resources Available To Facilitate Participation**
- **International Participation Is An Integral Part Of U.S. TMD Program**

BALLISTIC MISSILE DEFENSE

**Advance Planning Briefing To Industry
TMD C³ Program**

**BALLISTIC
MISSILE
DEFENSE
ORGANIZATION**

February 1994

**Col Richard A. Ritter, USAF
System Integration Directorate
Theater Missile Defense Deputate
Ballistic Missile Defense Organization**

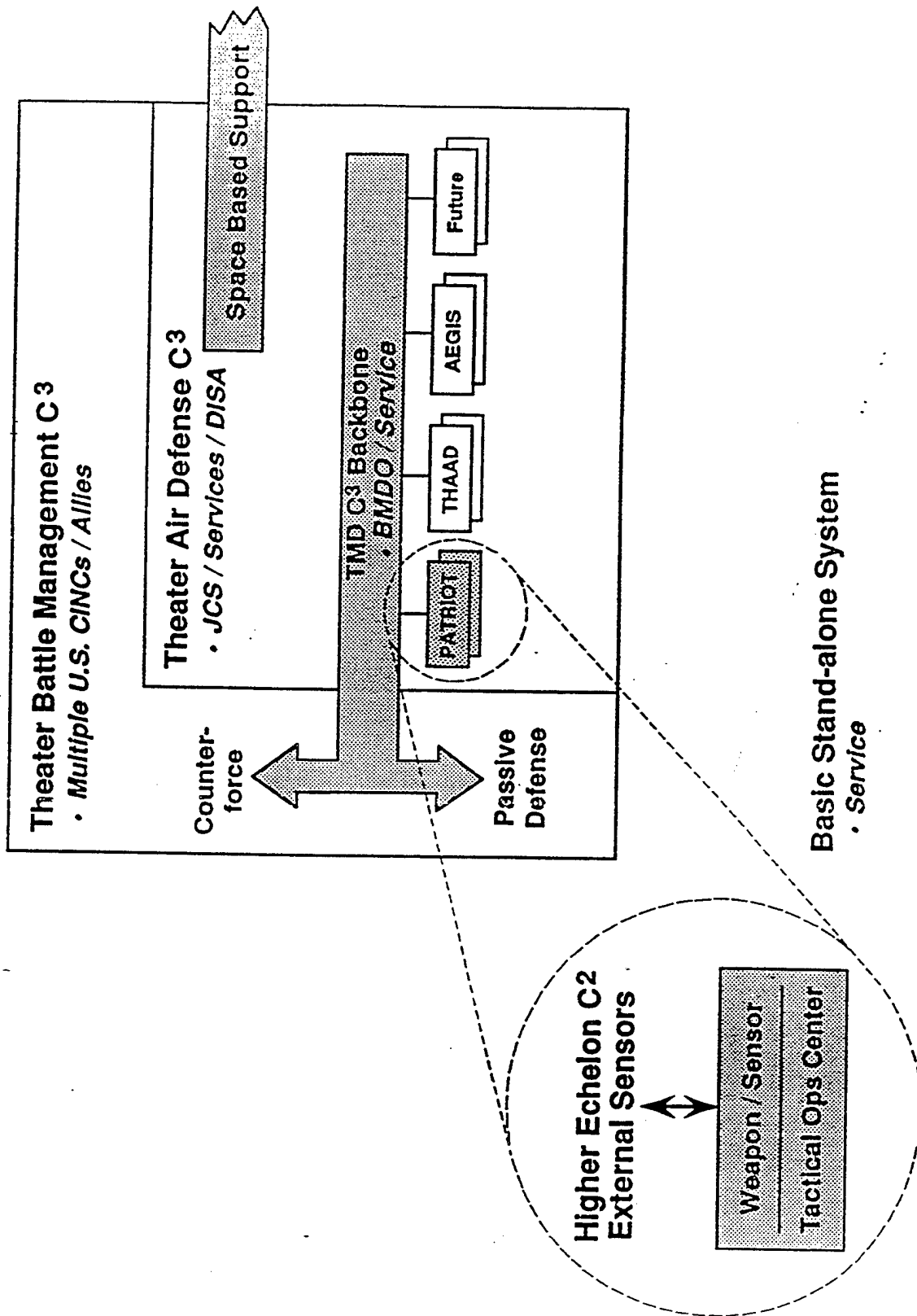
OUTLINE

- **Architecture Guidelines**
- **Desert Storm Lessons Learned**
- **Three Phased Program**
 - **Launch Warning And Dissemination**
 - **Communications Interoperability**
 - **Command And Control Center Upgrades**
- **Allied Interoperability Initiatives**
- **Summary**

TMD C3 I ARCHITECTURE GUIDELINES

- Theater Missile Defense (TMD) Is An Extension Of Tactical Air Defense
- TMD C3 Must Integrate With And Capitalize On Existing Heavy Service Investment In Air Defense C3
- Assets For Timely Warning And Cueing Include Space, Air, Ground, And Sea Based Surveillance
- TMD Evolution Supports Open Architecture
- Service / Joint / Allied Interoperability Must Be Maintained

FUNCTIONAL RELATIONSHIP



DESERT STORM C³I LESSONS LEARNED

C ³ I Issues	Shortfalls
Space Based Warning And Dissemination	→ Timely Delivery Of EWS Data
Satellite Communication Channel Availability And Capacity	→ Limited SATCOM Assets
Communication Systems Compatibility And Capacity	→ Interoperability
Communications Security	→ Interoperability
C ³ I Infrastructure	→ C ² Planning And Operations
Training / Exercises	→ C ² Planning And Operations

THREE PHASED TMD C³ PROGRAM

- **Launch Warning And Dissemination**
 - Improved Accuracy And Time Lines
 - Near Term Focus
- **Communications Interoperability**
 - Interface Standards
 - Joint Surveillance Net
 - UOES Focus
- **Command Control Center Upgrades**
 - Develop Information Architecture
 - Objective System Focus

SPACE BASED DATA INTEGRATION STRATEGY

Near Term

- Provide The War Fighter A Near Real Time Space Based Data Capability
 - TALON Shield
 - JTAGS
- Integrate Space Based Data Into Existing Satellite Networks
 - TIBS / TRAP

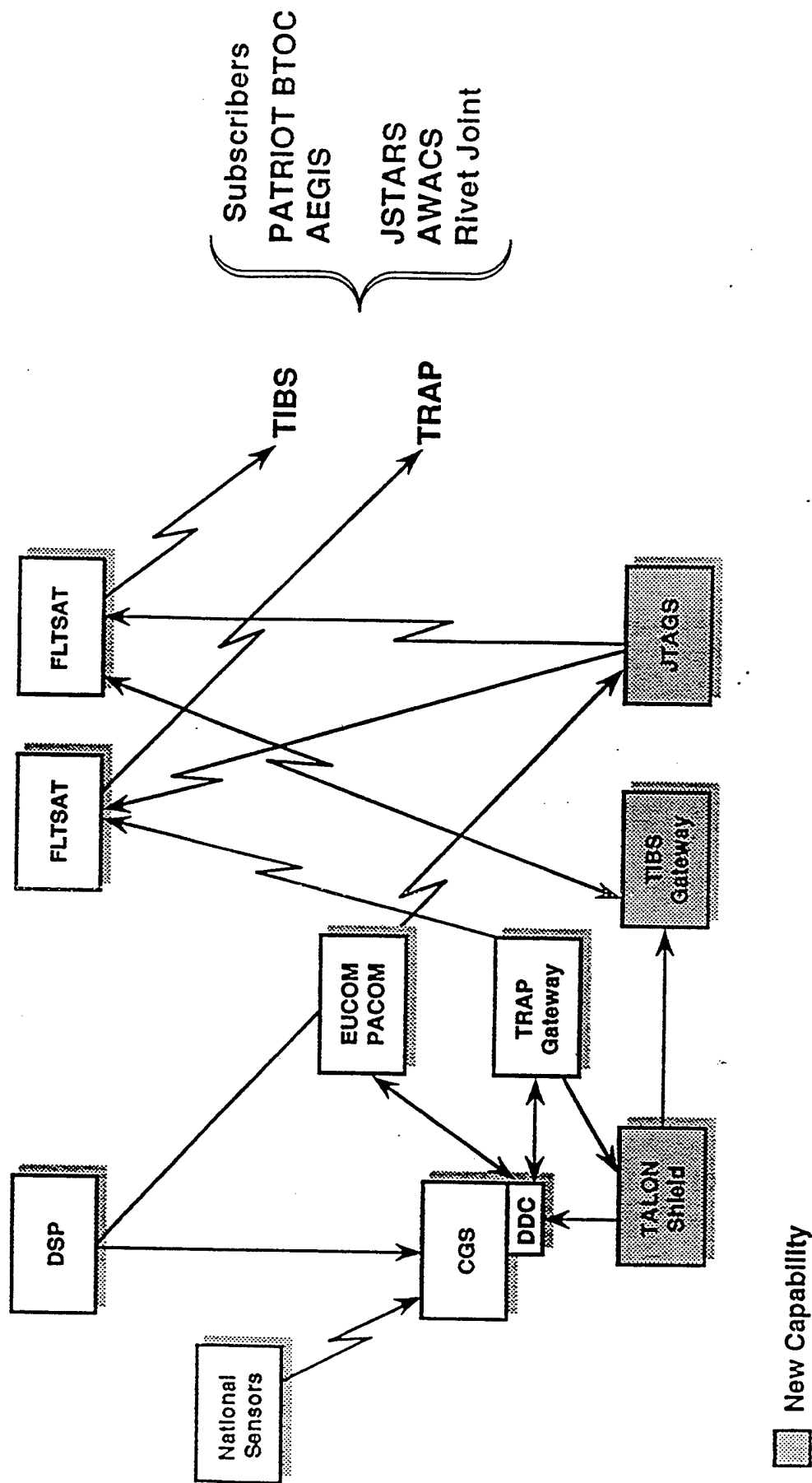
Far Term

- Plan For Evolution To Brilliant Eyes

TALON SHIELD / JTAGS PROCESSING ENHANCEMENTS FOR TMD

- **Increased Revisit Rates**
 - **Faster Track Formation And Reporting**
 - **Reduced Burnout Ambiguity Error**
 - **Improved Impact Point Prediction**
- **Multiple Viewing Angles**
 - **Enables "Triangulation" For 3-D Track Formation**
 - **Improved Trajectory Estimates**
 - **Improved Impact Point And Launch Point Estimates**
- **Reduced Thresholds**
 - **Process More Data Within Limited Areas**
 - **Focus On Adjacent Returns On Multiple Satellites**
 - **Faster Track Formation On Dimmer Targets**

SPACE BASED DETECTION / TRACKING NEAR TERM

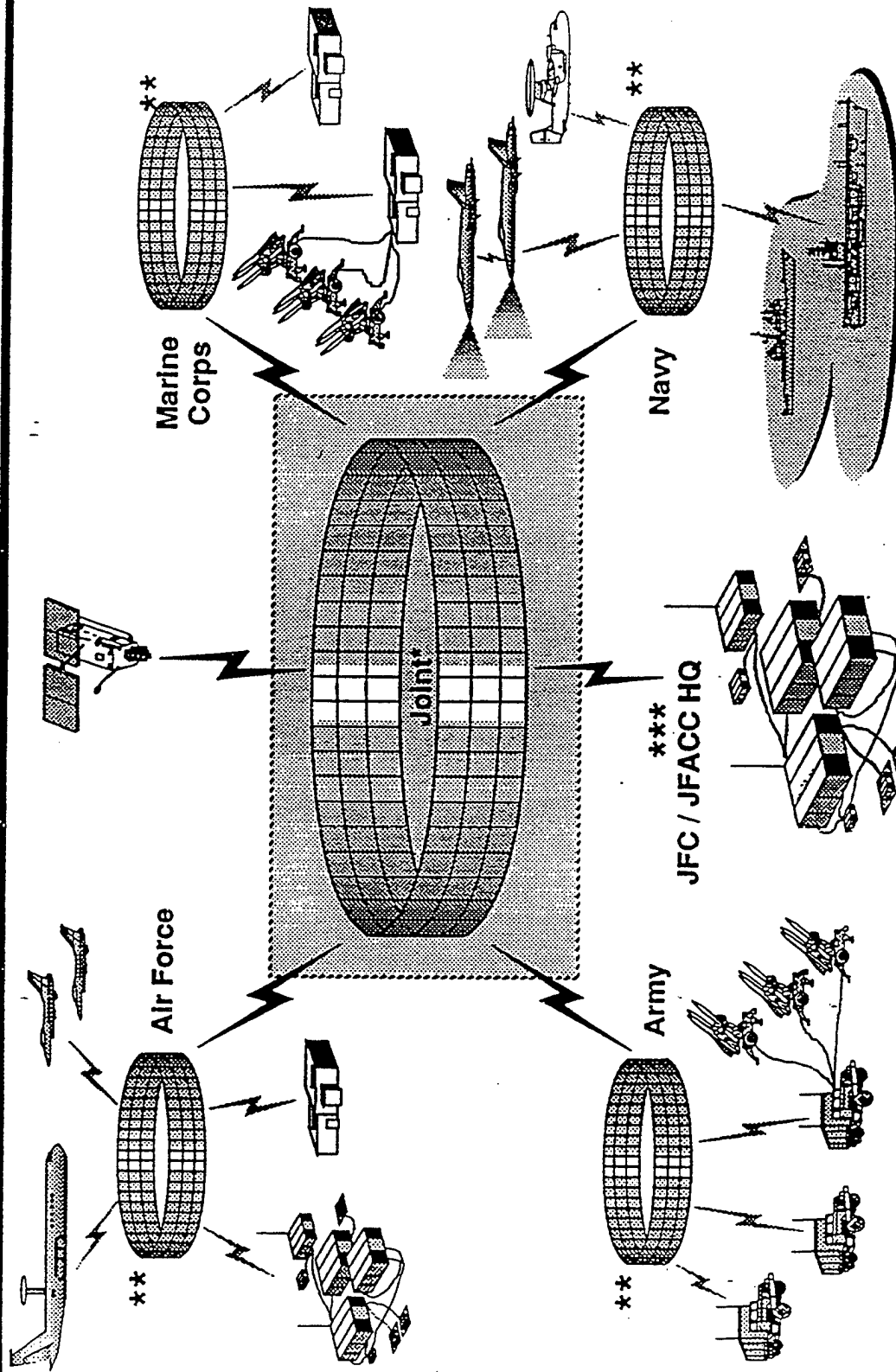


LAUNCH WARNING AND DISSEMINATION

Section	FY 93				FY 94				FY 95				FY 96				FY 97				FY 98			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Processing	<p>▲ JTACS Prototype (2)</p> <p>▲ JTACS EMD (2) ▲</p> <p>TALON Shield Demo ▲</p> <p>TALON Shield IOC ▲</p> <p>▲ JTACS (5) ▲</p>																							
Dissemination	<p>TIBS Gateway ▲</p> <p>▲ Initial TRAP / TIBS TBM Message</p> <p>TADIL J ICP Approval</p> <p>▲ TIBS Message Set Complete</p> <p>▲ TRAP Message Set Complete</p>																							
Experiments / Exercises	<p>JTAGS / PATRIOT Cue ▲</p> <p>Ornate Impact</p> <p>Optic Cobra</p> <p>CENTCOM</p> <p>PACOM</p> <p>CINC Experiments</p> <p>JTAGS / TPS-59 Cue ▲</p> <p>TPS-59 / MPQ-53 Cue Demo ▲</p> <p>CENTCOM EUR PACOM</p>																							

**BALLISTIC
MISSILE
DEFENSE
ORGANIZATION**

**NOTIONAL JOINT TMD
NETWORK STRUCTURE**



- * Examples Of Messages On Joint Network: Cuing, Launch Point, IPP, KA, Engagement Status, State Vector
- ** Examples Of Messages On Each Service Network: Operational Status, Track Data
- *** Examples Of Messages From JFC / JFACC: Critical Asset Priority, Prioritized Mission Target, Resource Allocation

**BALLISTIC
MISSILE
DEFENSE
ORGANIZATION**

TMD NETWORK REQUIREMENTS

Guidelines	Data Requirements
<ul style="list-style-type: none"> • Integrate With Air Defense • Minimum Impact On Air Defense Capabilities • Interoperable With Services / Allies • Permit Future Growth • Should Support Weapons Precommit • Space And Surface Based Cues Are Interchangeable 	<ul style="list-style-type: none"> • Cueing - State Vectors • Launch Point • Impact Point • Kill Assessment • Engagement Status • C² Coordination Functions

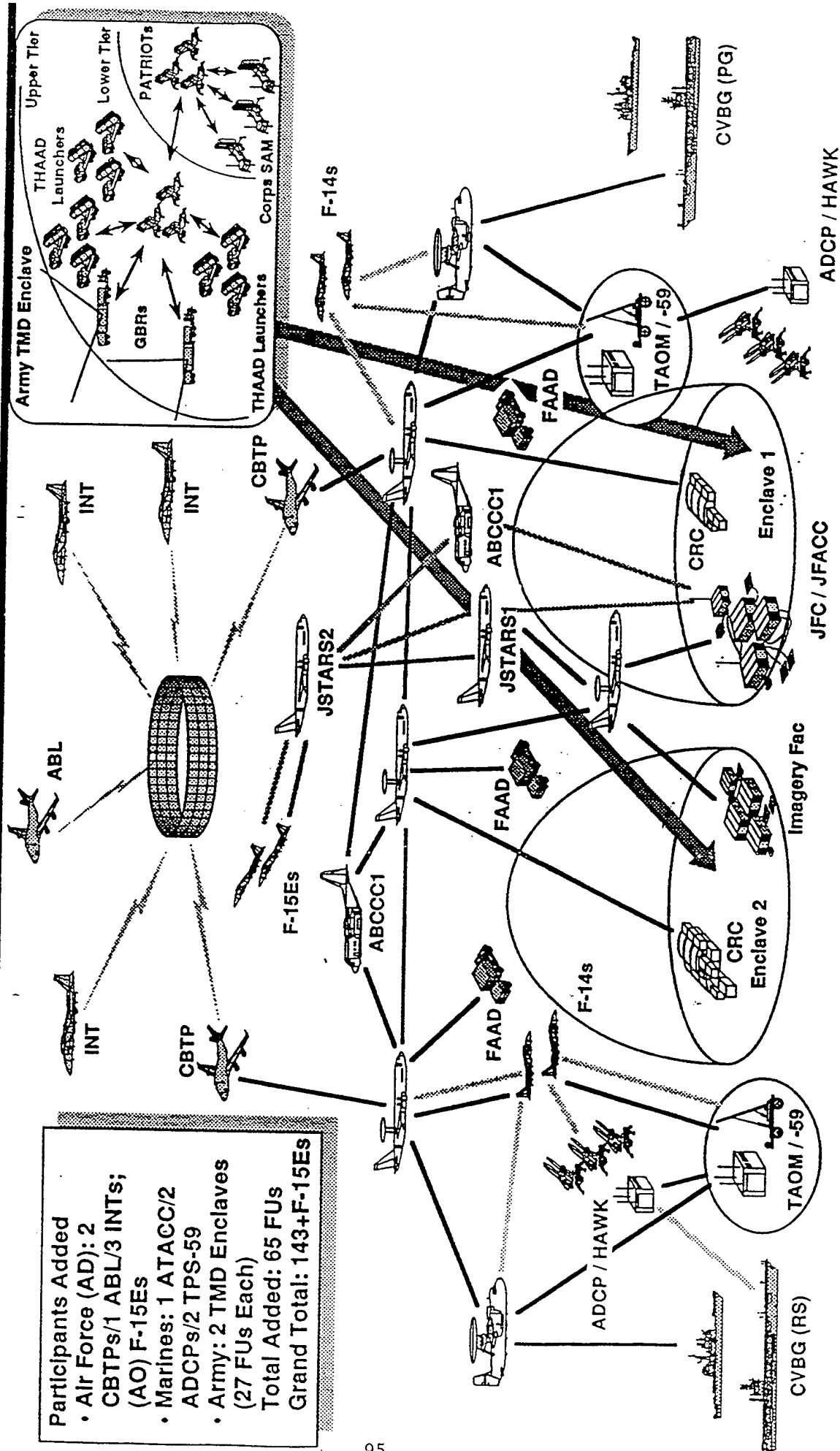
JTIDS / Link 16 Potential Candidate

SWA NETWORK TMD PARTICIPANTS ADDED

Participants Added

- Air Force (AD): 2 CBTPs/1 ABL/3 INTs; (AO) F-15Es
- Marines: 1 ATACC/2 ADCPs/2 TPS-59
- Army: 2 TMD Enclaves (27 FUs Each)

Total Added: 65 FUs
Grand Total: 143+F-15Es



JTIDS / TADIL-J STUDY CONCLUSIONS

- Survivability
 - No Critical Nodes
 - Robust Antijam
- Interoperability
 - DoD Joint Service Standard
 - NATO Standard
 - Interfaces With Counterforce
- Capacity
 - Supports TBMD High Data Rate Requirement With Minimal Impact On Air Defense
 - Throughput Far Surpasses Other Tactical Data Links

JTIDS / Link 16, The TMD C³ Medium

BMD MESSAGE SET DEVELOPMENT STATUS

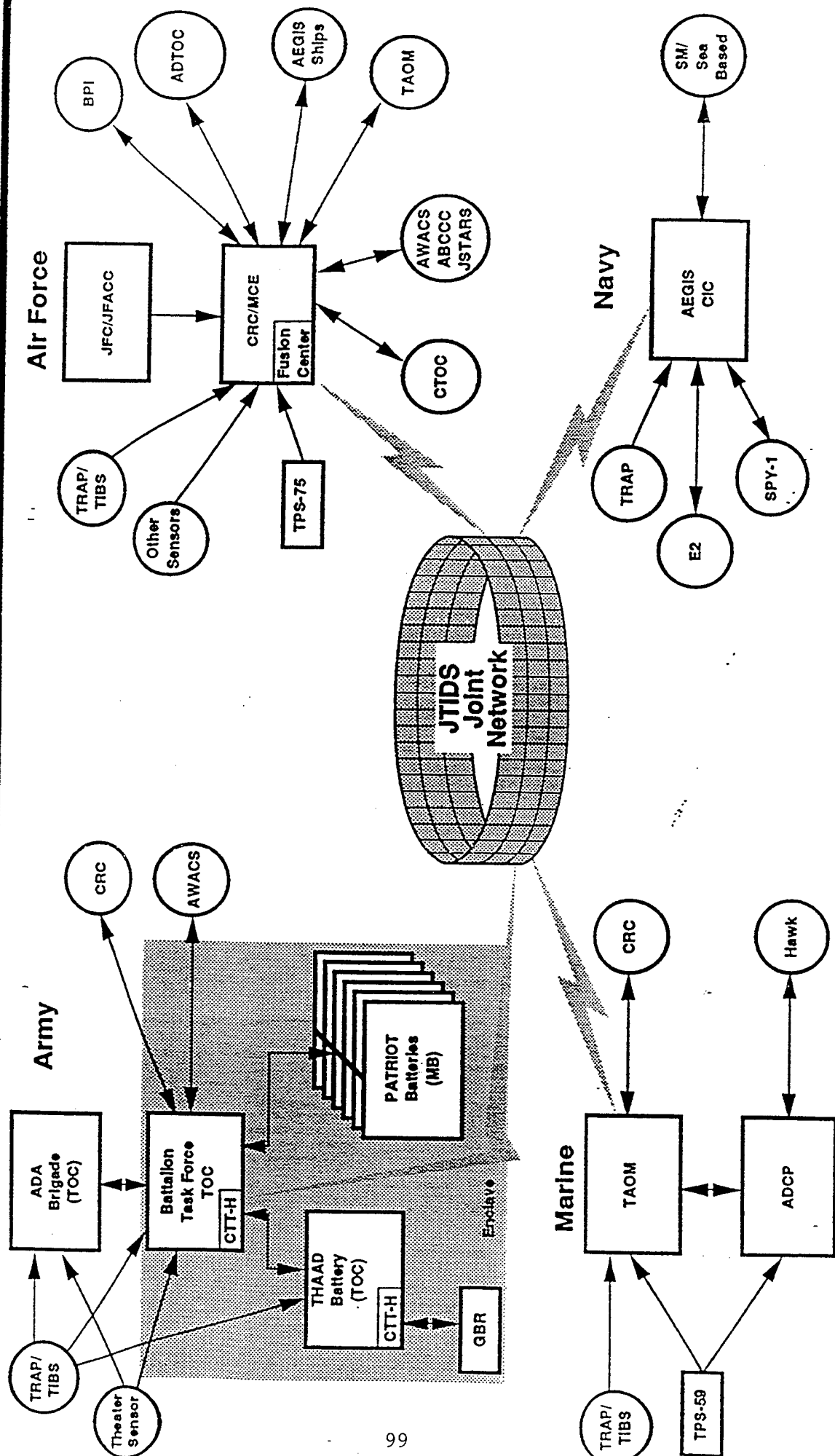
- NOV 92 - Joint BMDO / DOD / Service Working Group Chartered
- JUN 93 - Initial Data Requirements Completed
- JUN 93 - Concept Briefed NATO Allied Data Standards Interoperability Agency
- NOV 93 - Draft Message Standard Completed For Service Coordination
- FEB 94 - U.S. TADIL Standard Approved
- FEB 94 - Formal Submit For NATO Approval
- NOV 94 - NATO Review Board

APPROVED TADIL-J INTERFACE CHANGE PROPOSAL




























Established

- **Standard DoD Ballistic Missile Messages**
 - **Launch And Impact Point**
 - **Missile State Vector And Covariance Matrix**
- **Transmit / Receive Rules**
- **Reporting Responsibility Rules**
- **Track Quality Scheme**
- **Use Of Cartesian Coordinates For Missile Tracks**
- **WGS-84 Earth Center Fixed Geodetic Reference**

TMD IN-THEATER CONNECTIVITY

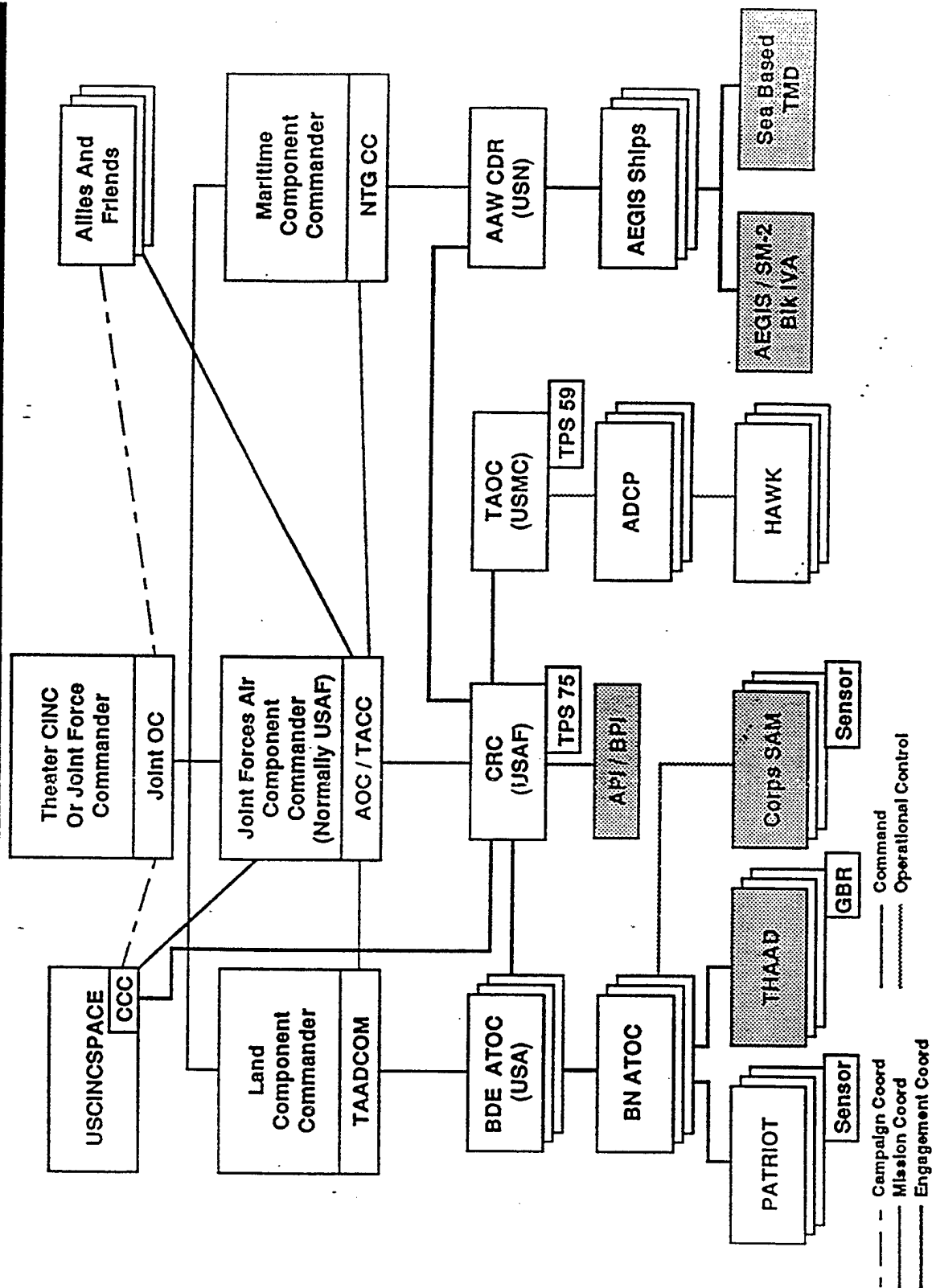


COMMUNICATIONS INTEROPERABILITY

Section	FY 93				FY 94				FY 95				FY 96				FY 97				FY 98			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Milestones	<p>THAAD Build 3  TMD / GBR  UOES </p> <p>THAAD Build 4 </p> <p>PATRIOT Build 4  TPS-59 UOES </p> <p>PATRIOT Build 4.5 </p> <p>Marine ADCP </p>																							
Data Link Engineering	<p>Data Link Study </p> <p>TADIL-J ICP  U.S. Approval </p> <p>NATO Briefing Concept  Formal NATO Submit </p> <p>TIBS / TRAP Updates </p> <p>NATO Approval  Multi-TADIL Standards </p>																							
JTIDS Terminals	<p>USN (40)  THAAD (10) </p> <p>MCE / TAOM  PATRIOT (21) </p> <p>JTIDS Integration </p> <p>USMC (5) </p> <p>Army </p>																							
Integration Test	<p>SIT 96-1  SIT 97-1 </p> <p>C³ IIT  C³ IIT </p>																							

BALLISTIC MISSILE DEFENSE ORGANIZATION

TBMD COMMAND AND CONTROL STRUCTURE



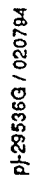
**BALLISTIC
MISSILE
DEFENSE
ORGANIZATION**

**TMD ACTIVE DEFENSE
COMMAND AND CONTROL**

Level	Authority	Location	Principal Functions*
Centralized Theater Command	Theater CINC Or Joint Force Commander	Joint Operations Center	Theater Campaign Planning Campaign Priorities Campaign Coord ROE
Centralized TMD Command	Joint Force Air Component Commander (Normally Air Force Or Navy)	Air Operations Center (Normally Air Force AOC)	TMD Mission Planning Course Of Action (COA) Resource Management Situation / Threat Assessment Theater-level Mission Coord
Decentralized Operational Control		Air Force CRC Navy AAW Center Army BDE ATOC Marine TAOC Allied Equivalents	Engagement Planning Situation / Threat Assessment Target Priorities Resource Tasking Human Control Fire Control Orders Theater-level Execution Coord Health, Status And Feedback
Decentralized Battle Execution		TMD Fire Units	Target Acquisition And Selection Fire Control Solution System Activities Inflight Diverslon / Correction Health, Status And Feedback

* From Joint Publication 3-01.5, "Doctrine For Tactical Missile Defense"

TBMD COMMAND AND CONTROL STRUCTURE

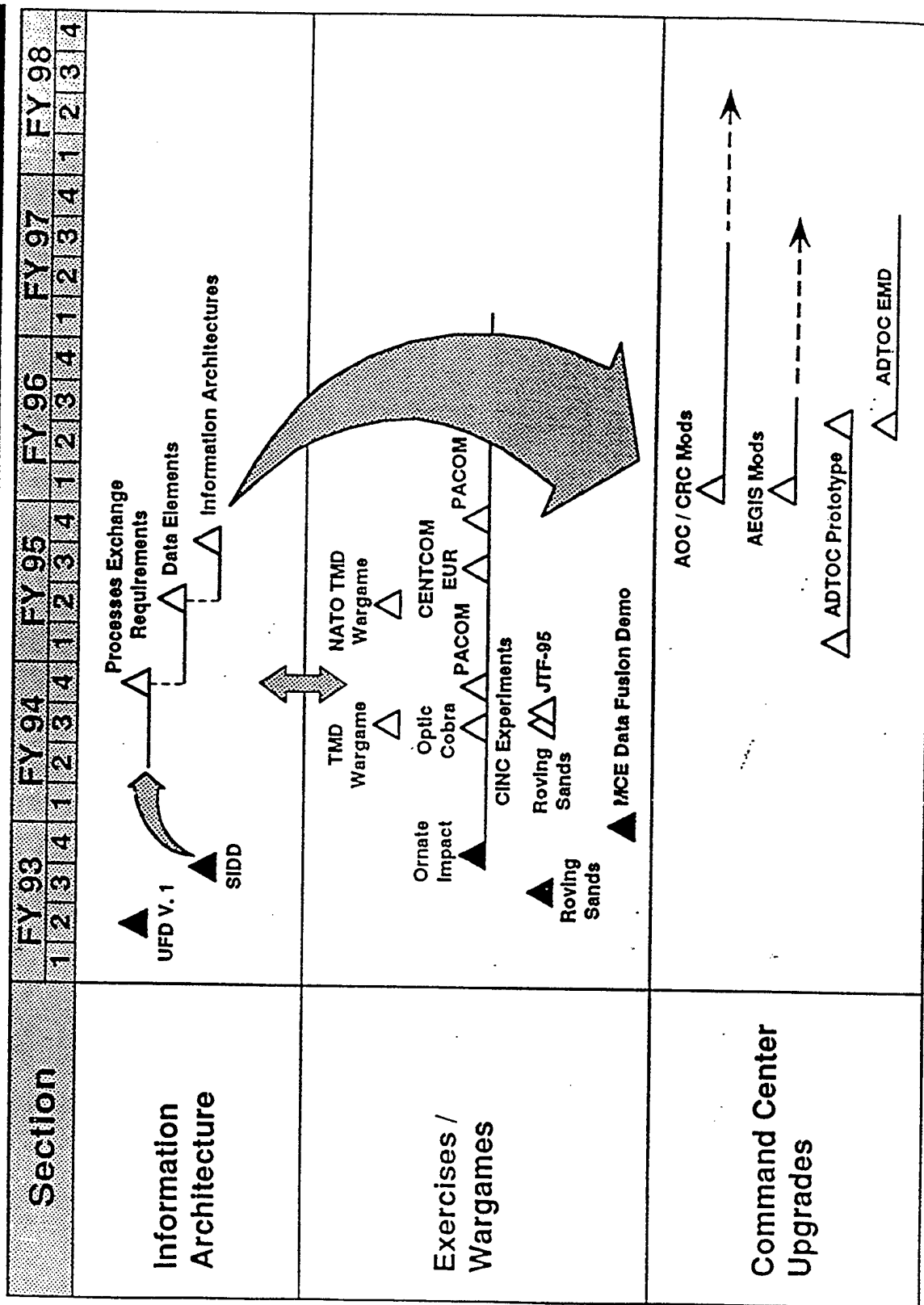


TMD INFORMATION ARCHITECTURE

- Identifies The Essential Elements Of Information Needed To Accomplish The TMD Mission
 - Who
 - What
 - When
- Identifies Rules For Handling Information
- Captures The Dynamic Behavior Of The System
- Identifies Required External Interfaces

The TMD Information Architecture Is
The Common Framework For
Operator - Developer Coordination

COMMAND CONTROL CENTER UPGRADES



ALLIED INTEROPERABILITY INITIATIVES

- **NATO**
 - **Actively Engaged**
 - **Allied Data Standards Interoperability Agency**
 - **RSG - 16**
 - **EAD MOA (Germany)**
- **Israel**
 - **THAAD / Arrow Interoperability Initiatives**
- **Other Nations**
 - **National Disclosure Policy Issues**
 - **Secure Communications Policies**
 - **Working With JCS / NSA And Others To Resolve**

TMD C³ SUMMARY

- Integration Strategy Provides The Forum To Implement Change
- Architecture Capitalizes On Existing And Planned Air Defense C³ Structure
- Integrates Space Based Warning And Cueing
- Provides Warfighting CINC A C³ Capability With The Flexibility For A Wide Range Of TBM Scenarios And Deployments

BALLISTIC MISSILE DEFENSE

National Missile Defense Briefing To Industry

BALLISTIC MISSILE DEFENSE ORGANIZATION

2 MAR 94

Mr. Francis O'Meara
General Manager (Acting)
Ballistic Missile Defense Organization

pj-34623A / 011994

19 JAN 94
DRAFTER

LAST YEAR'S VIEW

FY 93	FY 94
\$1,680 Million	\$1,195 Million
Acquisition Program	Acquisition Program
Robust Protection vs Massive Threat	Protection vs Limited Threat

BALLISTIC MISSILE THREAT TO UNITED STATES

Three General Categories

Current Assessment

- **Emerging Attack Capability**
 - From Hostile Third World Country



- First Decade Of Next Century With Internal Development
- Sooner If Boosters, Weapons, And / Or Expertise Are Transferred

Accidental Attack

- From Former Soviet Union
- From China



- Small Probability

Deliberate Attack

- From Former Soviet Union
- From China



- Not Likely

**BALLISTIC MISSILE DEFENSE
KEY COMPONENT OF DoD DEFENSE STRATEGY**

Past Cold War Dangers

- Regional Aggression

• PROLIFERATION

Defense
Strategy

- Dangers To Democracy
- U.S. Economic Concerns

- Defense Counterproliferation Initiative


- Includes Missile Defenses

BMDO Mission

NMD MISSION

**Develop Options For, And Deploy When Directed,
An Antiballistic Missile System That Is Capable Of
Providing Highly Effective Defense Of The U.S.
Homeland Against Limited Attacks Of Ballistic
Missiles**

NMD PROGRAM RESPONSE

- A Standard NMD Acquisition Program Is Inappropriate At Present
 - Timing And Character Of Threat Are Uncertain
 - Acquisition Is Expensive
 - Deployment Takes A Long Time
 - But*
 - The Consequences Of Guessing Wrong Are Unacceptable
- 
- Create A Middle Ground That Is
 - More Than Just Research And Development
 - Less Than Deployment Commitment

Technology / Readiness Program

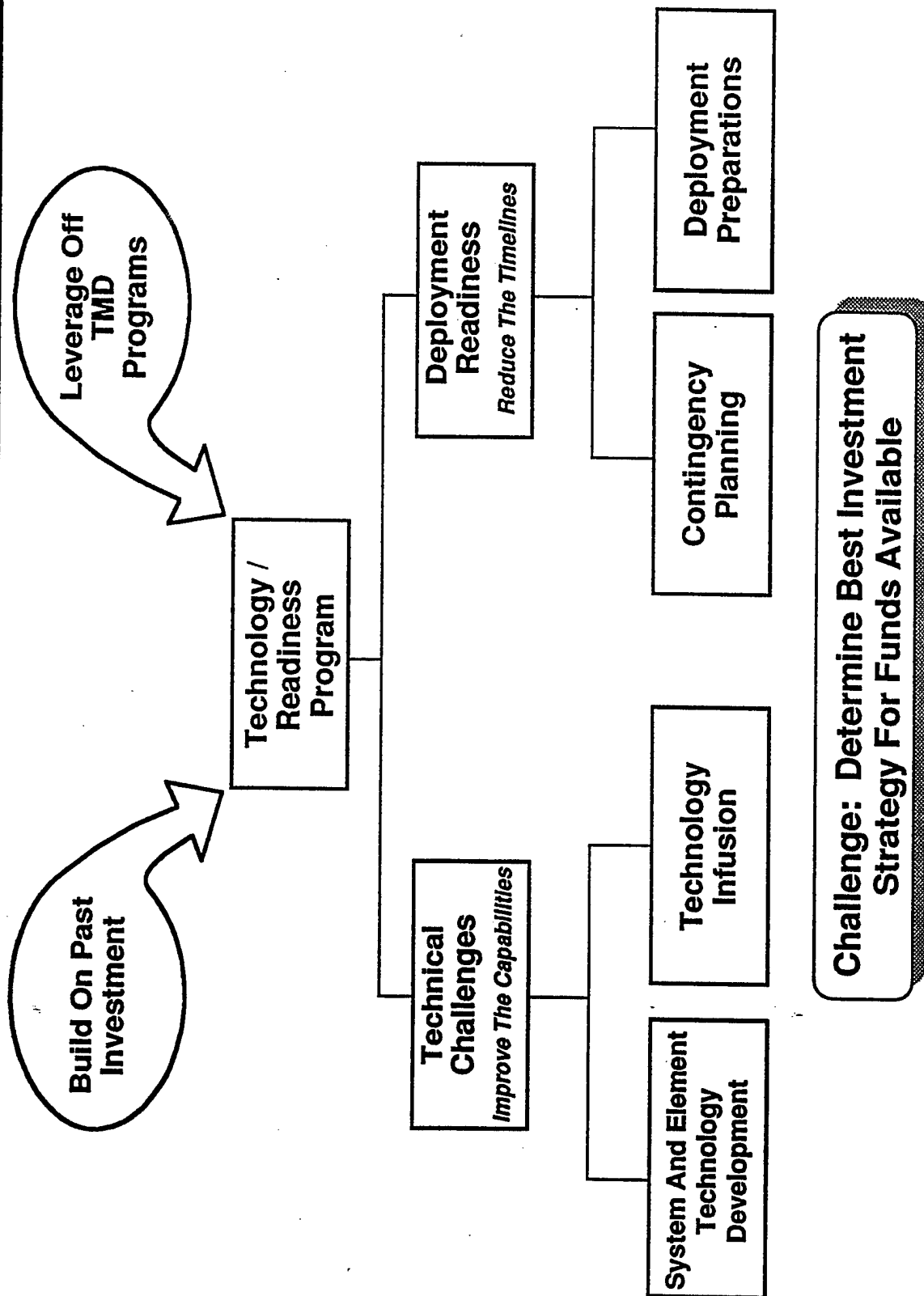
WHAT IS A TECHNOLOGY / READINESS PROGRAM ?

**A Program Motivated By Threat Uncertainty Which
Develops Improved Performance Over Time And Leads To
Increasingly Capable Deployment Options**

Technology / Readiness Program Attributes

- **Attends To Toughest Problems (Long Poles)**
- **Defers Activities That Can Be Solved Later**
- **Maintains Ongoing Contingency Deployment Options**
- **Reduces Upfront Investment**
- **Avoids Commitment To Full Development And
Production**
- **Allows Flexibility To Respond To Changing Program
Objectives And Constraints**

TECHNOLOGY / READINESS PROGRAM CONTENT

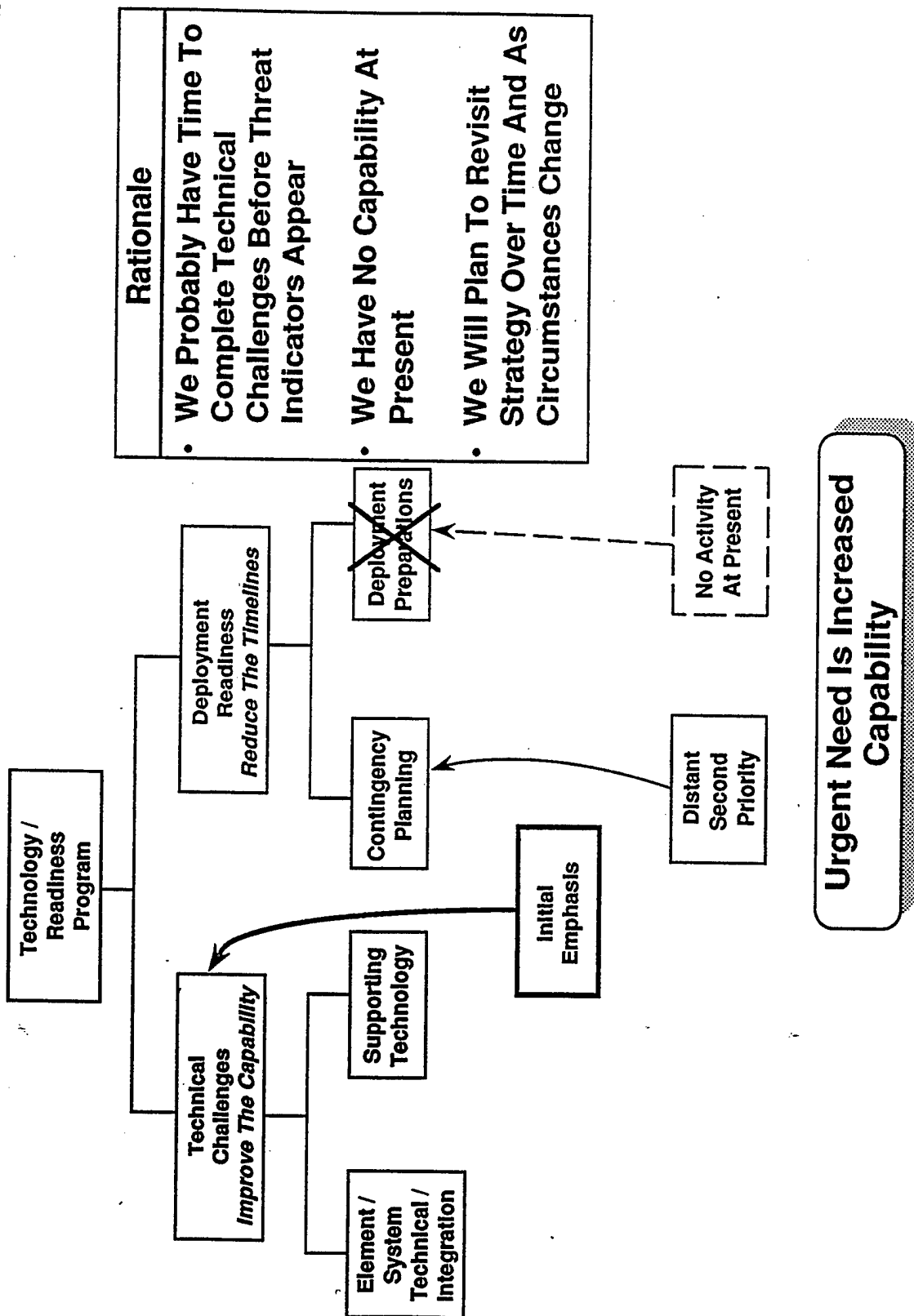


CONSTRAINTS AND BOUNDARIES

- **ABM Treaty**
- **Full U.S. Defensive Coverage**
- **Nonnuclear Weapon Technologies**
- **≈ \$600M / Year Made Available For Program**

**Resolve Key Technical Challenges
And
Develop And Maintain Options To Deploy**

TECHNOLOGY / READINESS PROGRAM INVESTMENT STRATEGY



CURRENT STATUS

GBI

- ERIS Intercepted In Test Environment
 - Not Designed To Be An Operational Interceptor
- GBI-X Contractors Working Kill Vehicle Technology

GBR

- Raytheon Designing TMD Dem / Val Radar
 - NMD GBR Terminated

BM / C³ • C² Tactical Evaluation Demonstrator At National Test Facility

Grand Forks

- Maintained In Caretaker Status

BE

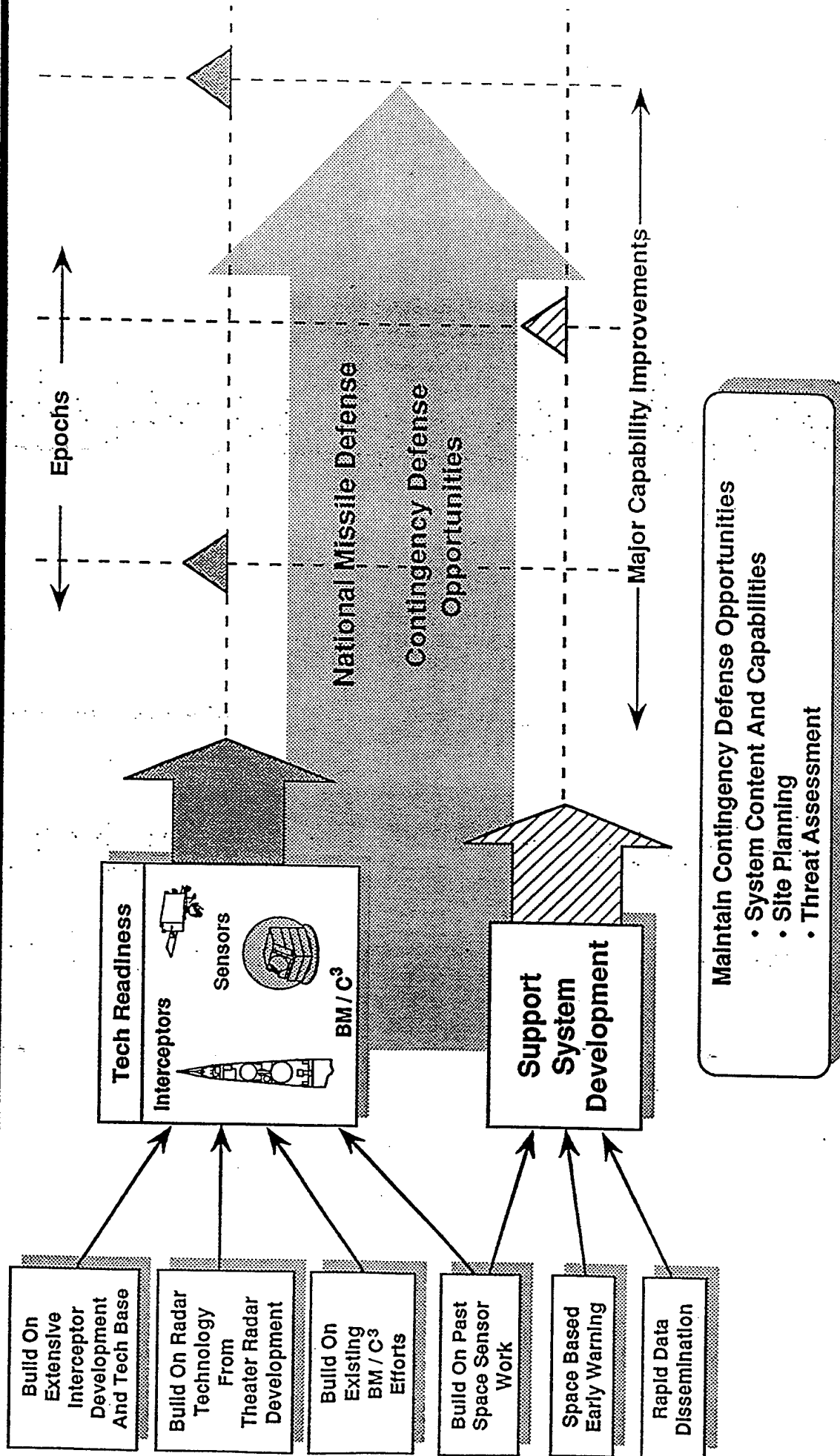
- Flight Demonstration Program Continues, Though Slowed

Where We Are Today Drives Our Choice Of Long Poles

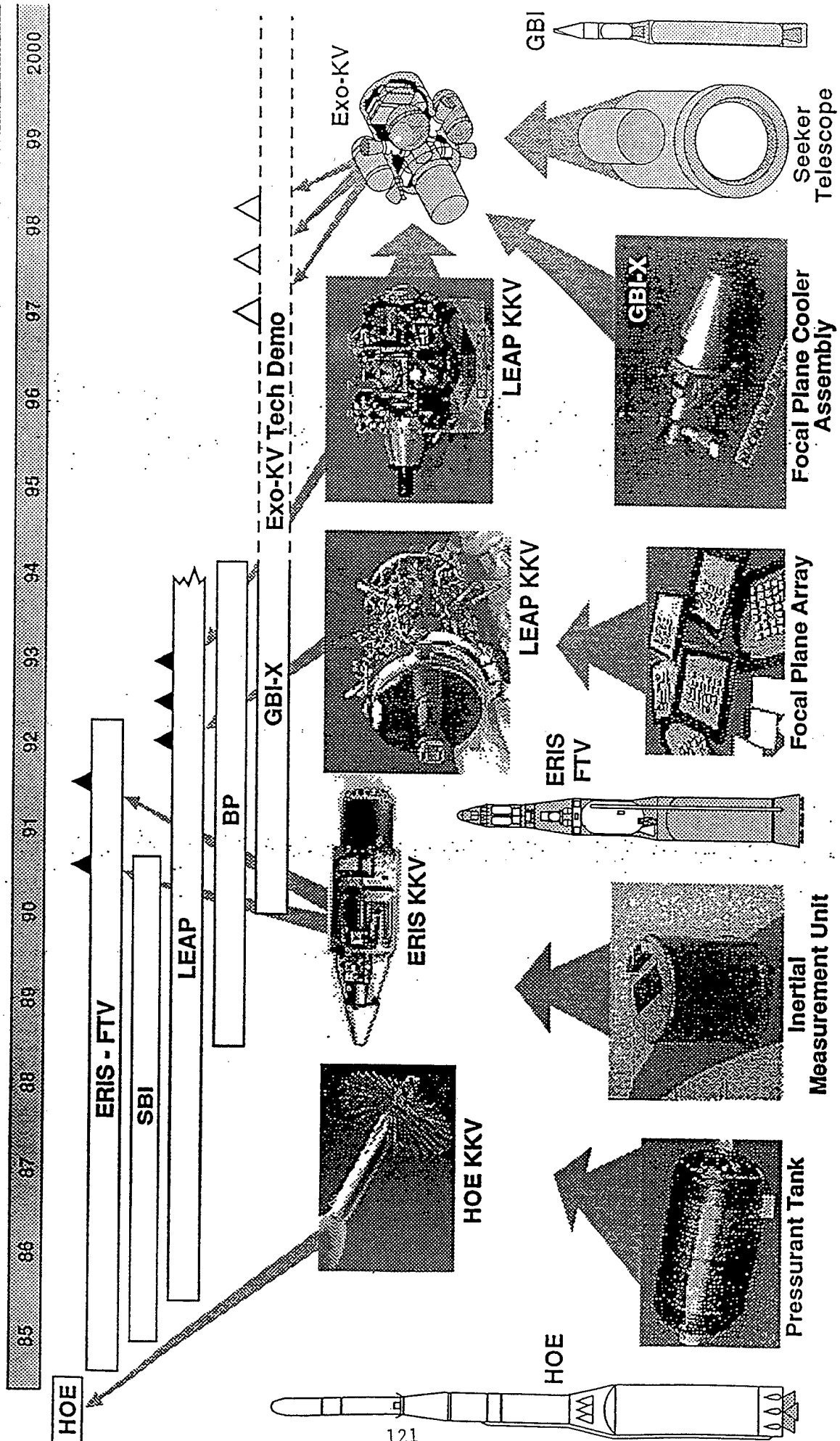
TECHNOLOGY / READINESS PROGRAM EPOCHS

- **Our Technology / Readiness Program Is Structured In A Series Of Epochs**
- **An Epoch Is**
 - **A Period Of Time ... Over Which A Significant Capability Evolves**
 - **Nominally Runs About 3-4 Years**
- **Focus During An Epoch Is On The Element(s) Which Constitute The "Weak Link(s) In The Chain" In The Overall System Capability**

NATIONAL MISSILE DEFENSE TECHNOLOGY READINESS PROGRAM CONCEPT



EKV GROWTH FROM PAST PROGRAMS



UNCLASSIFIED

FAMILY OF RADARS (U)

M-931204-02U (C) (3343)

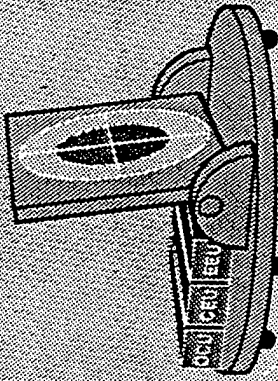
TMD-GBR DEM/VAL



ORIGINAL FAMILY CONCEPT

- TMD SOLID STATE
- NMD TWT
- 80-85% COMMONALITY

NMD RADAR TECHNOLOGY DEMONSTRATOR



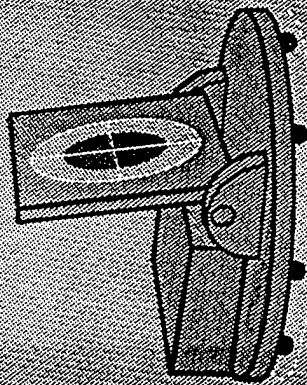
NMD EVOLVES FROM TMD

- TMD SOLID STATE
- NMD SOLID STATE
- 90-95% COMMONALITY WITHIN THE FAMILY
- TMD D/V RADAR '95-97
- EVOLVES TO RTD/NMD IN '98/99

TECHNOLOGY LEVERAGING

- SOLID STATE T/R MODULES
- DATA PROCESSING CAPACITY
- DISCRIMINATION ALGORITHMS
- KILL ASSESSMENT ALGORITHMS
- RESOURCE MANAGEMENT & SCHEDULING

NMD DEPLOYMENT SYSTEM



TMD-GBR IS THE CORNERSTONE FOR NMD DEVELOPMENT

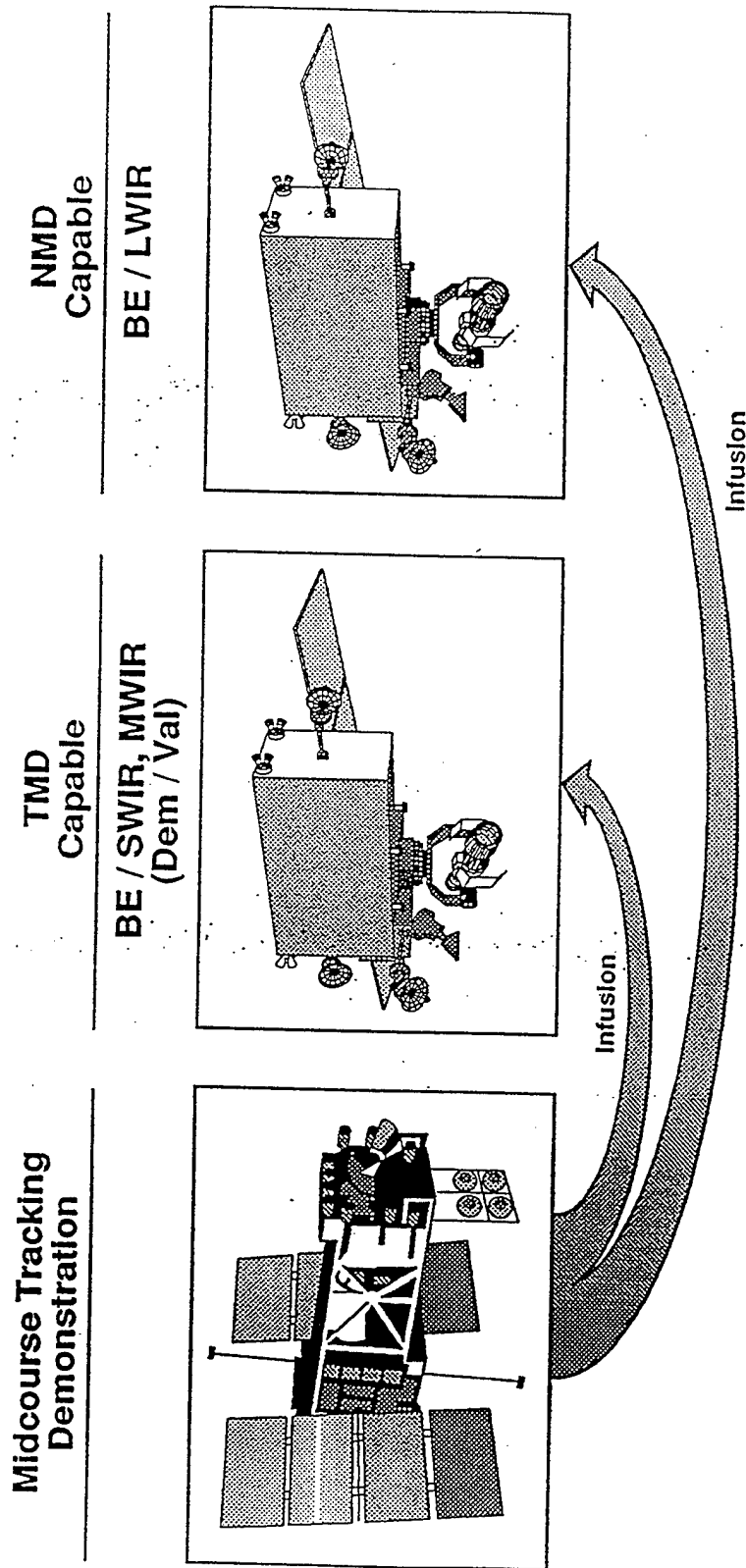
UNCLASSIFIED

UNCLASSIFIED

BM/C³ COMMONALITY - NMD AND TMD

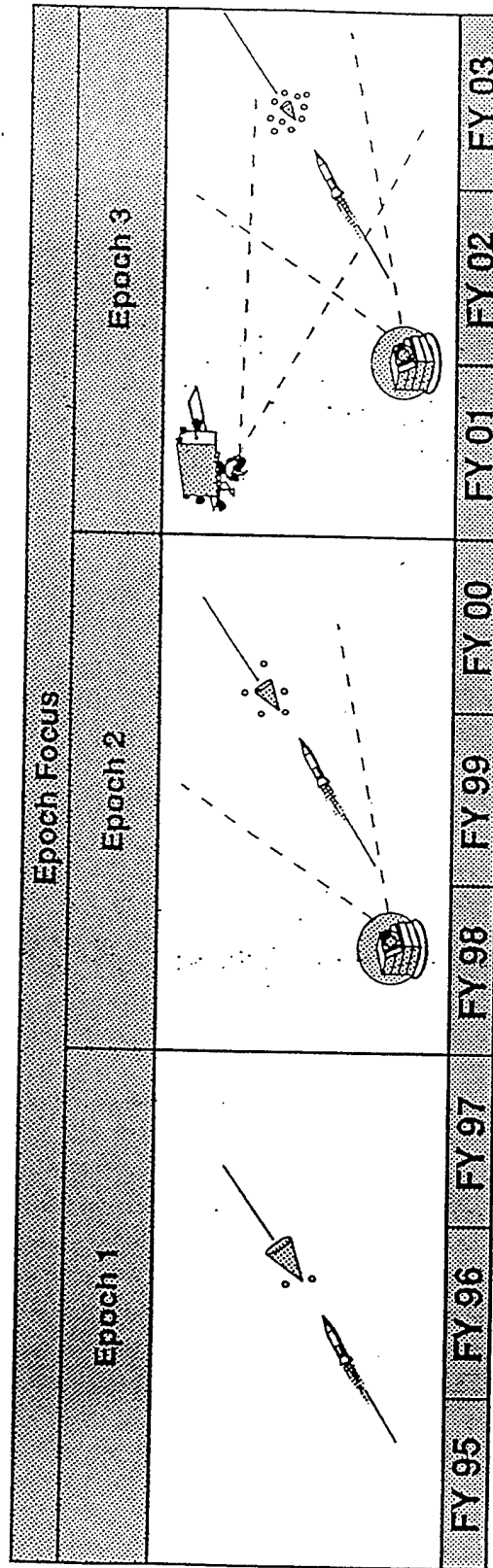
- There Are Common Functions Of NMD And TMD BM/C³
- Information Architecture Is The Key Tool To Determine These Common Functions
 - Effort Being Initiated
- BM/C³ Activities Focused Around Common Functions
 - Situation Assessment
 - USSPACECOM Support To Theater
- Opportunity Areas For Leveraging
 - Situation Assessment
 - USSPACECOM Support To Theater
 - Engagement Operations (Battery)

BE DEVELOPMENT AND DEPLOYMENT EVOLUTION



BALLISTIC
MISSILE
DEFENSE
ORGANIZATION

NMD TECHNOLOGY READINESS PROGRAM



NMD PROGRAM COSTS

Resources	TY \$ In Millions	
	FY 94	FY 95
EKV	57.2	120.0
GBR	24.9	18.0
BM / C ³	23.2	56.5
BRILLIANT EYES	0	120.0
MSX	112.0	62.8
Test And Simulations	28.6	30.0
Technology	45.7	72.1
Core Support	282.5	104.9
Total	574.1	584.3

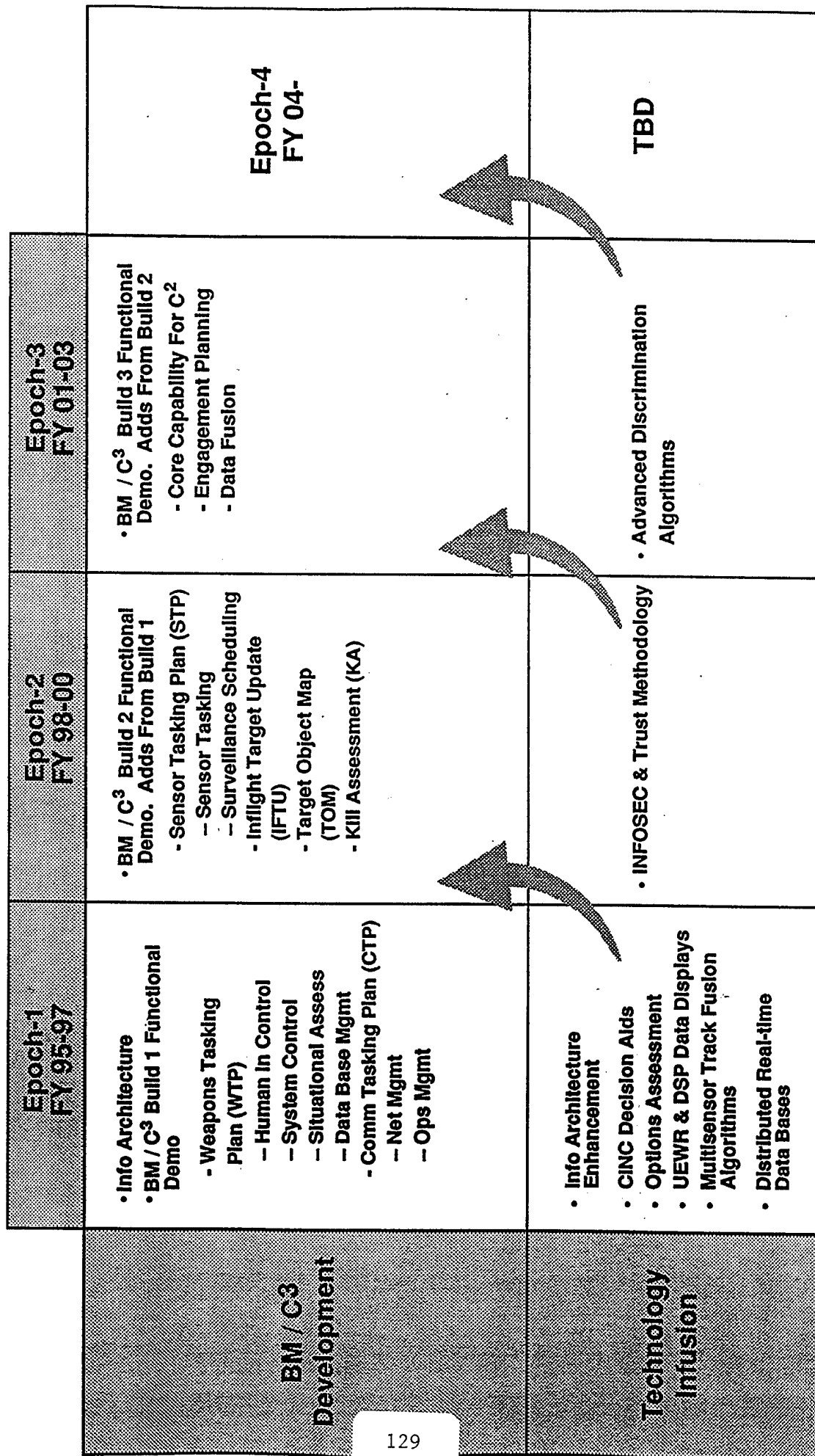
SUMMARY

- Program Addresses Post Cold War Uncertainty
- Epoch Strategy Stresses
 - Ever Increasing Capability
 - Deployment Planning
 - Flexibility
- Program Supports DoD Counterproliferation Initiative
- Program Responds To Congressional Direction
 - Treaty Compliant Development Program
 - System Level Technical Challenges

Cost-effective Response To Uncertainty

BACKUP

NMD BM / C³ PROGRAM



NMD-GBR PROGRAM

	Epoch-1 FY 95-97	Epoch-2 FY 98-00	Epoch-3 FY 01-03	Epoch-4 FY 04-
	<ul style="list-style-type: none"> • Algorithm Development • Real Time Digital Simulation <ul style="list-style-type: none"> - FY 95-97 • HWIL Simulation <ul style="list-style-type: none"> - FY 95 • SS T/R Module <ul style="list-style-type: none"> - FY 95-98 	<ul style="list-style-type: none"> • Real-time Digital Simulation <ul style="list-style-type: none"> - FY 98-99 • HWIL Simulation <ul style="list-style-type: none"> - FY 98-99 • Radar Technology Demo With TMD-GBR Dem / Val <ul style="list-style-type: none"> - FY 99-00 	<ul style="list-style-type: none"> • RTD (TMD-GBR Dem / Val) Testing / Integration <ul style="list-style-type: none"> - FY 01-03 • Data Collection Targets Of Opportunity 	
NMD-GBR Development	<ul style="list-style-type: none"> • Discrimination • TOM • Mechanical / Electronic Scan • Kill Assessment • Solid-state Demonstration Array (SSDA) 	<ul style="list-style-type: none"> • Advanced Discrimination Development • Advanced Algorithm Development • OPINE Simulation 	<ul style="list-style-type: none"> • Advanced Discrimination Development • Mechanical Technology For Deployable System • Digital H/W Technology (Upgraded Data / Signal Processors) • Advanced SS Technology For Deployment 	TBD
Technology Infusion				

BRILLIANT EYES PROGRAM

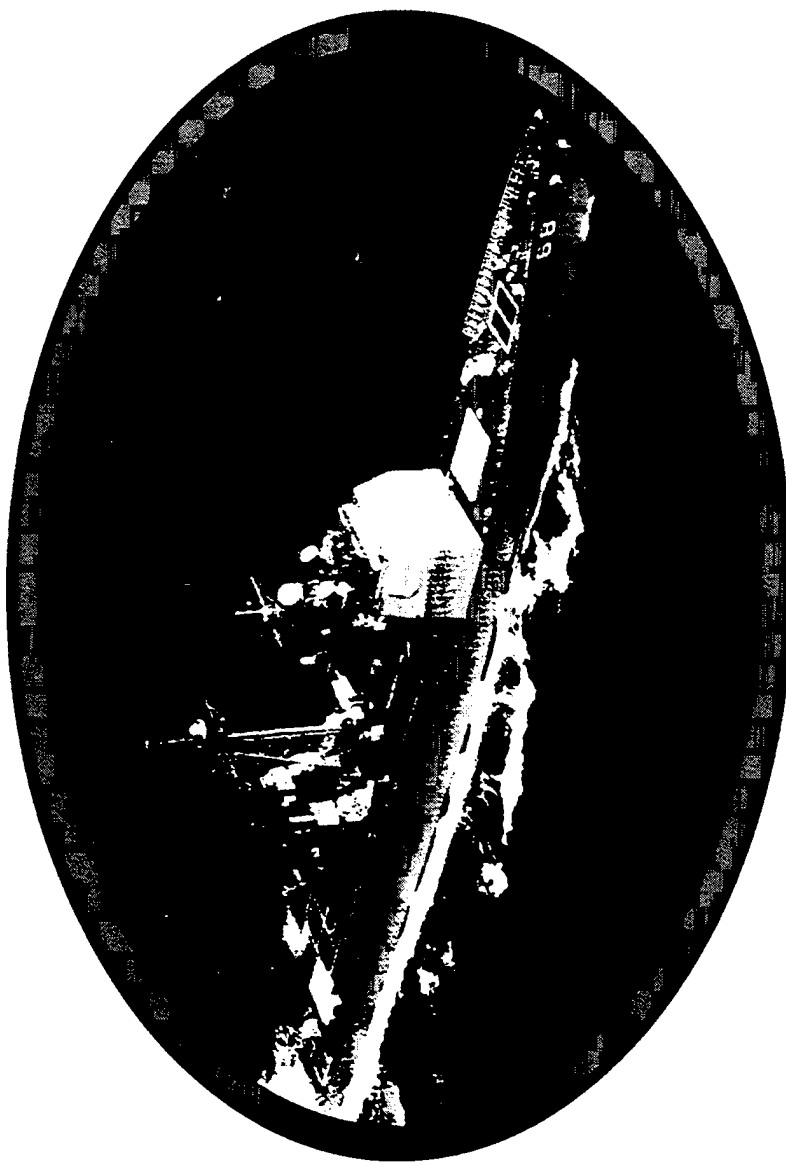
BE Development	Epoch-1 FY 95-97	Epoch-2 FY 98-00	Epoch-3 FY 01-03	Epoch-4 FY 04-
Technology Infusion	<ul style="list-style-type: none"> • End To End Real-time Simulation <ul style="list-style-type: none"> - 1Q FY 95 • Technology Maturity Perf Tests <ul style="list-style-type: none"> - Focal Plane Arrays - Life Test 60 / 40 Kelvin Cryocoolers - Life And Qual Test 60 GHz Comm • End-to-end Sensor Demo (ETESD) Of Flight Sensor Design <ul style="list-style-type: none"> - 1Q FY 96 	<ul style="list-style-type: none"> • VLWIR Focal Plane Arrays • 10K Cryocooler • Survivability Testing • Advanced Discrimination Algorithm Development • Validated Target And Background Data Bases And Model Development 	<ul style="list-style-type: none"> • Improved Focal Plane Arrays • Producibility • Validate Discrimination Algorithms 	TBD

EKV PROGRAM

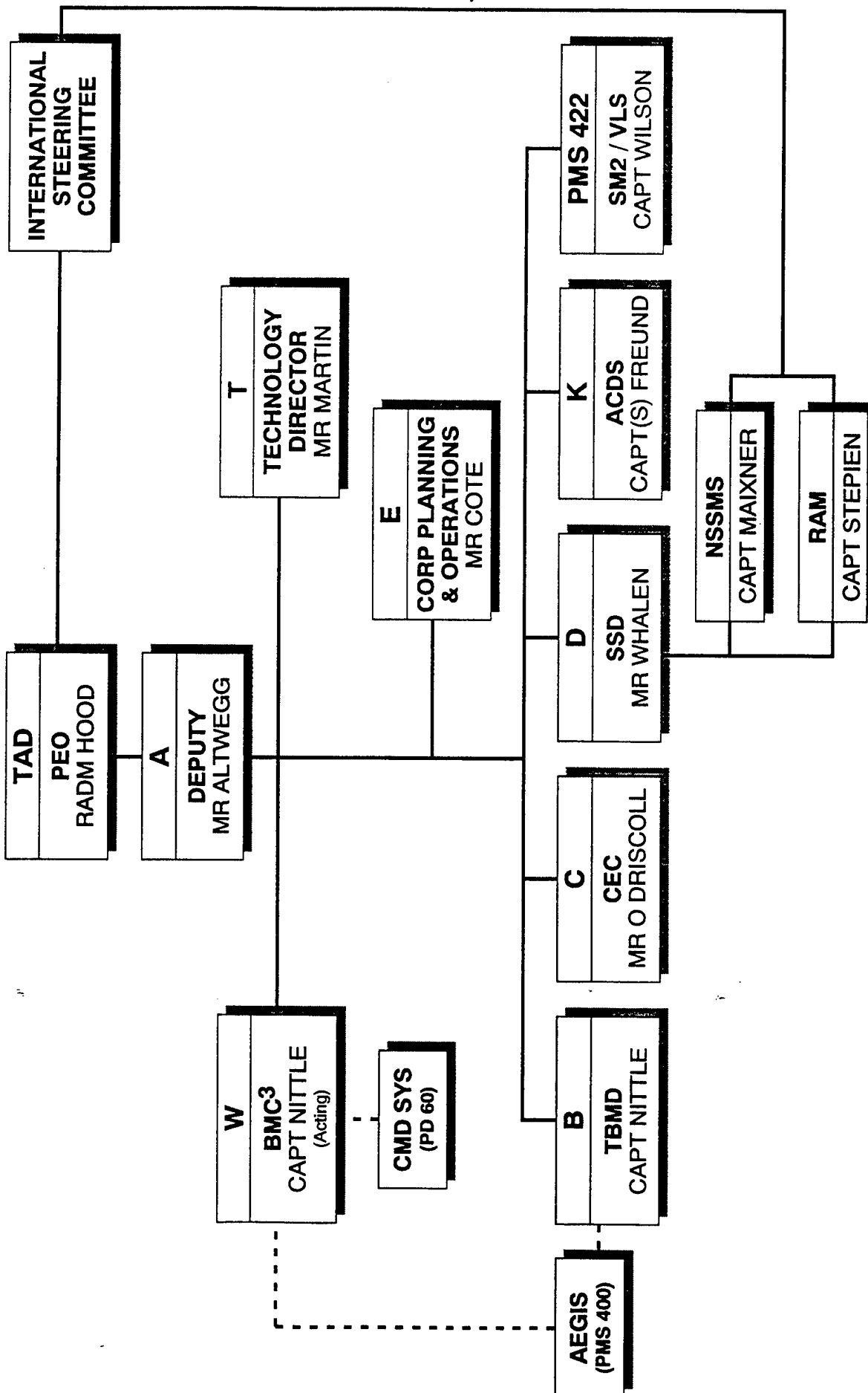
		Epoch-1 FY 95-97	Epoch-2 FY 98-00	Epoch-3 FY 01-03	Epoch-4 FY 04-
EKV Development		EKV-1 <ul style="list-style-type: none"> • Seeker Design Review <ul style="list-style-type: none"> - 3Q FY 94 • EKV Design Review <ul style="list-style-type: none"> - 1Q FY 96 • Brass Board Seeker Flights <ul style="list-style-type: none"> - 2Q FY 96 • Component Demo / Lab Tests • EKV Fabrication • EKV Brass Board Flight <ul style="list-style-type: none"> - 4Q FY 97 • SIM / HWIL 	EKV-2 <ul style="list-style-type: none"> • EKV Brass Board Flights <ul style="list-style-type: none"> - 4Q FY 98 - 3Q FY 99 - 3Q FY 00 • Demo Interface And Interoperability With Radar Thru BM / C³ • Characterize Performance SIM / HWIL 	GBI-Class <ul style="list-style-type: none"> • Incorporate Technology Advances • Integrate And Demo EKV / Booster • System Technology Demo • Demonstrate Active EKV Brass Board 	
	Technology Infusion	<ul style="list-style-type: none"> • LWIR FPA Producibility • Cryocooler Technology • Discrimination Software • Materials And Structures 	<ul style="list-style-type: none"> • Active Sensor Packaging • Light Weight LADAR Technology • WFOV, Cooled Optics • Divert, Attitude Control System (ACS) 	<ul style="list-style-type: none"> • Improved Integrated Sensor • Brass Board / Prototype <ul style="list-style-type: none"> - Quad-D • On Board Active / Passive Discrimination • Kill Assessment • Retina Sensor 	TBD
Leverage LEAP And THAAD Technologies Where Practical					

SEA BASED

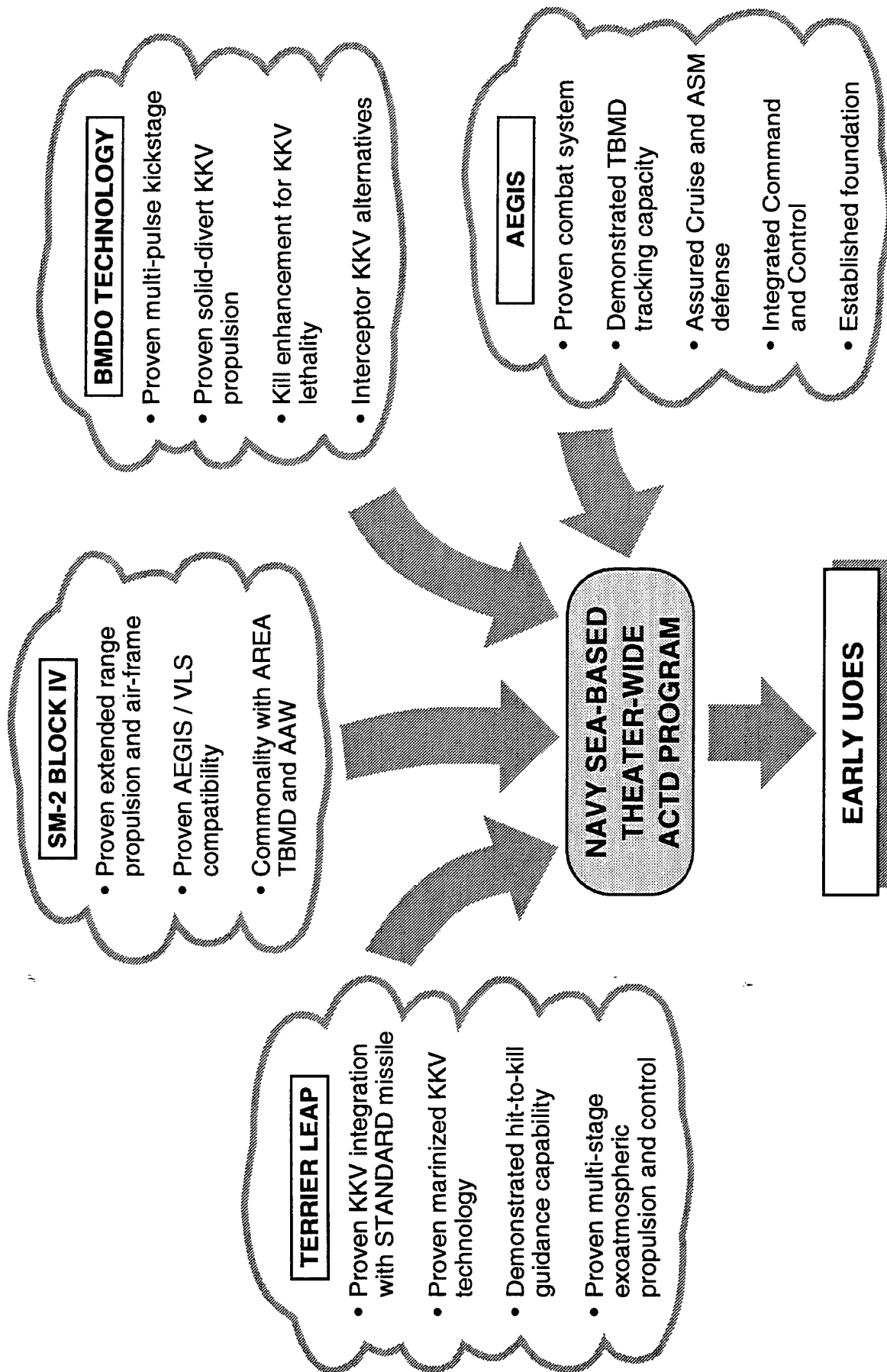
THEATER BALLISTIC MISSILE DEFENSE



PEO(TAD) FUNCTIONAL ORGANIZATION



WHAT WE CAN DO



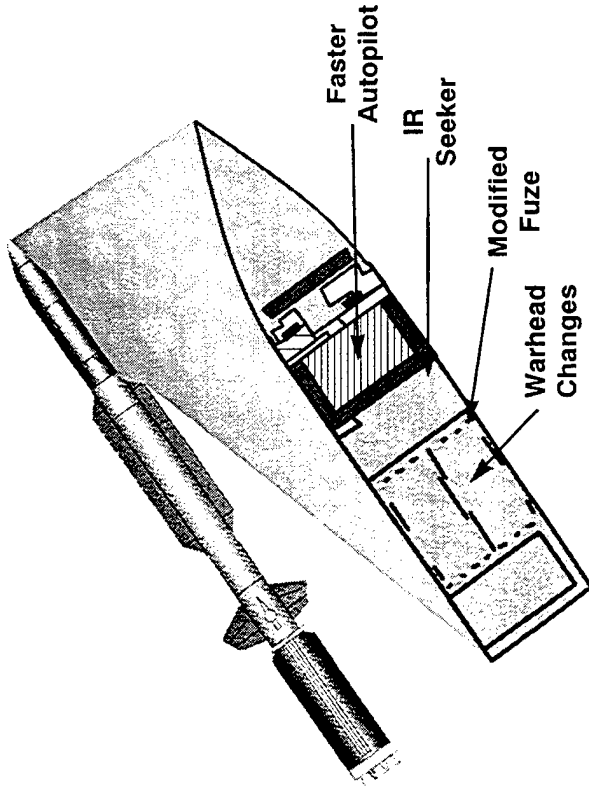
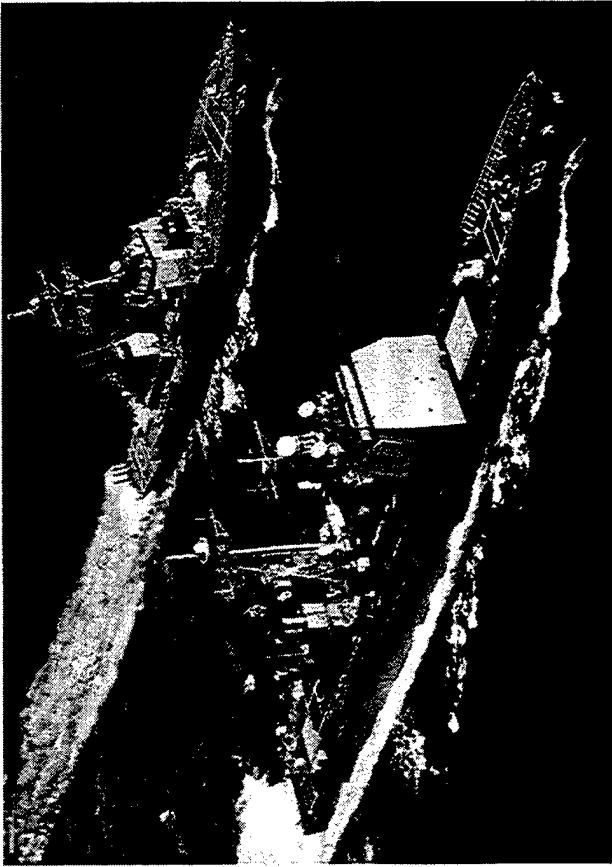
SEA BASED TBMD STRATEGY

- **EVOLVE AEGIS WEAPON SYSTEM/STANDARD MISSILE TO PROVIDE AREA DEFENSE CAPABILITY**
- **RAPID INTRODUCTION OF TBMD CAPABILITY AT SEA THROUGH LAND / SEA DEMOS OF KEY TECHNICAL RISK AREAS**
 - **EXTENDED RANGE TRACKING AT SEA APR 95**
 - **TBM TARGET INTERCEPT AT WSMR NOV 95**
 - **TBM TARGET INTERCEPT AT SEA FEB 97**
- **EVOLVE NEAR TERM THEATER WIDE DEFENSE CAPABILITY FROM TERRIER LEAP FLIGHT TESTS**
- **INITIATE MID-TO-FAR TERM THEATER WIDE CAPABILITY DEVELOPMENT**

**BUILD ON CURRENT FORCE STRUCTURE
EVOLVE CAPABILITIES**



SEA BASED AREA DEFENSE PROGRAM

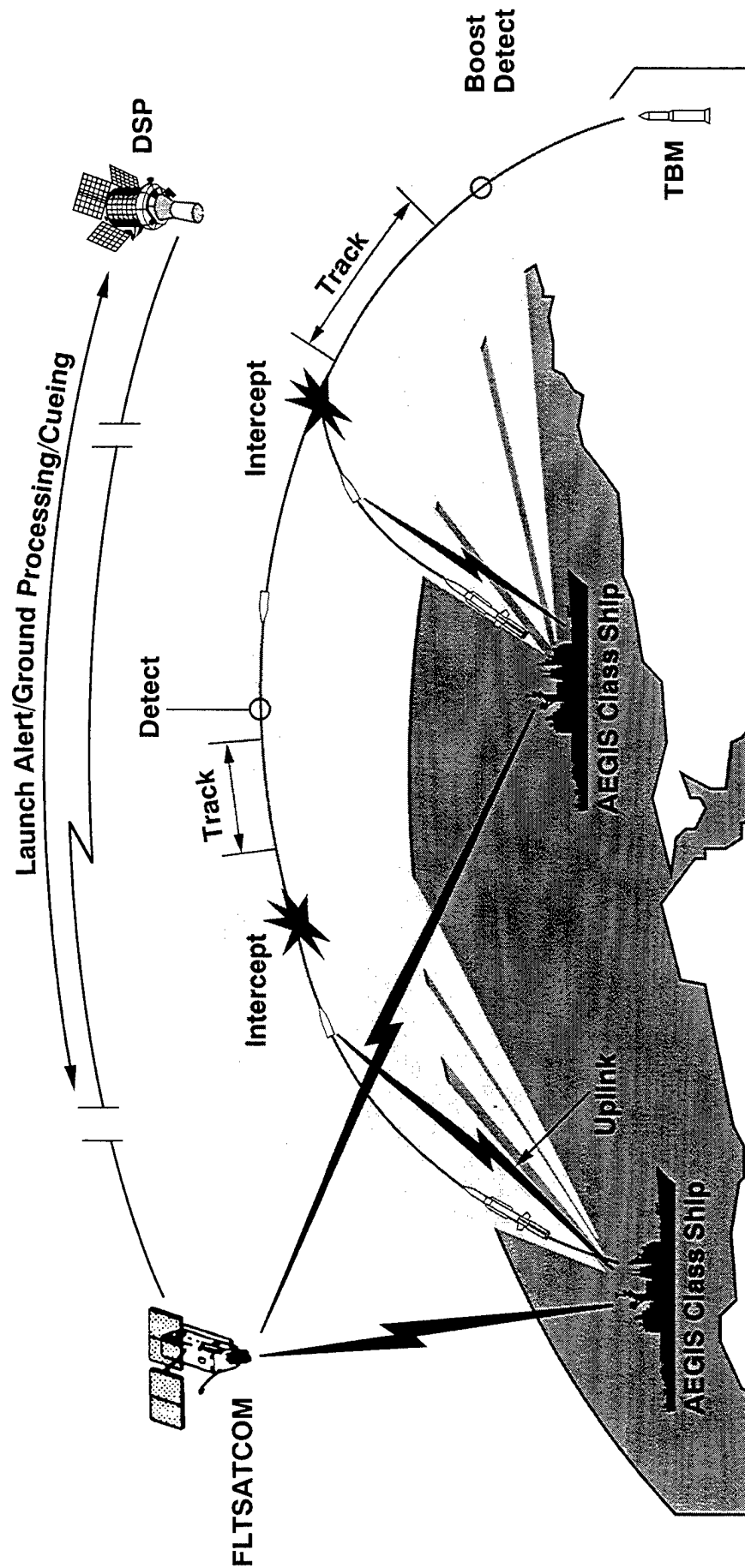


Objective: Deployment Of Area Ballistic Missile Defense Capability

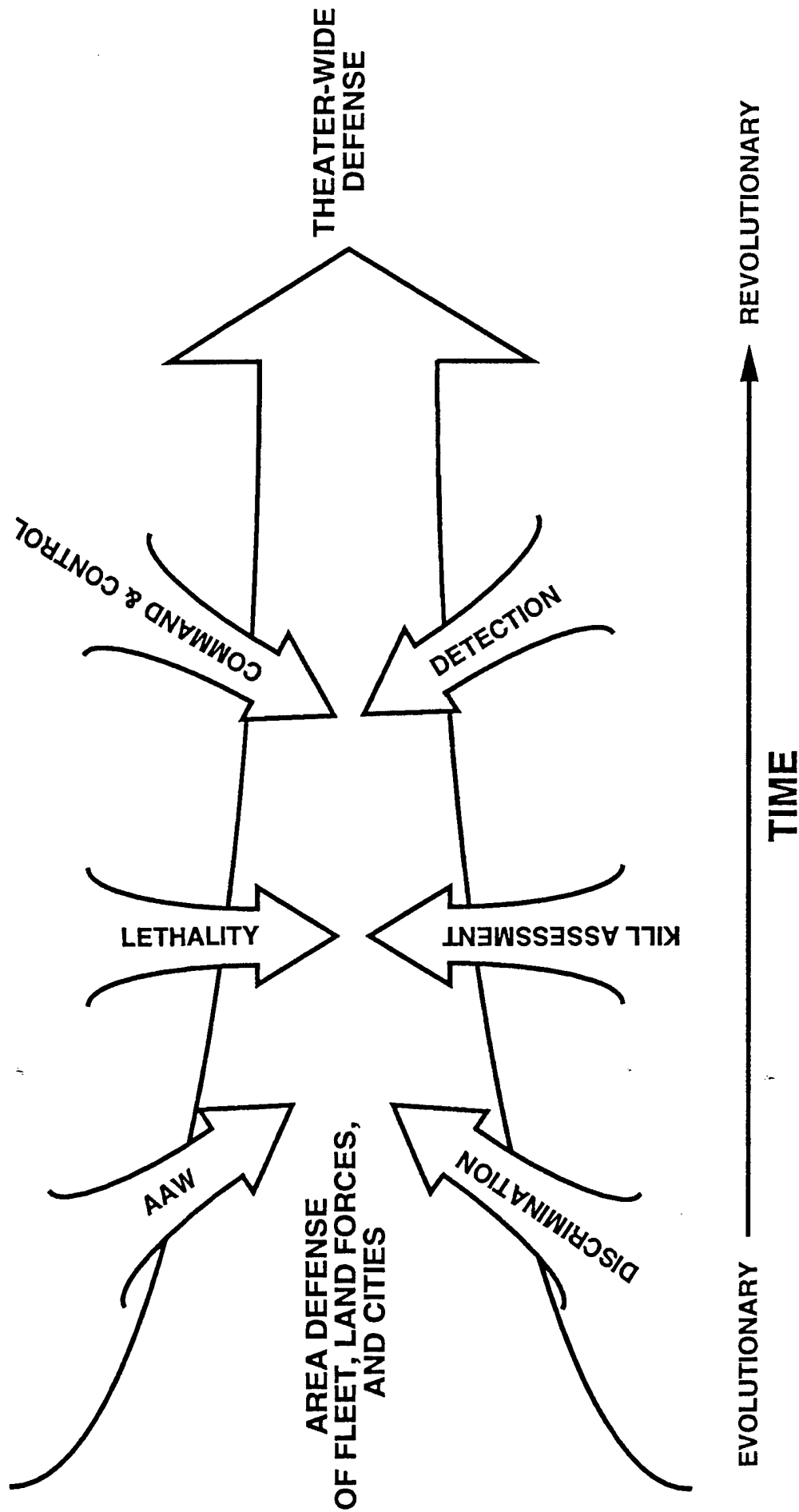
- Modify AEGIS Weapon System To Provide For TBM Attack Warning, Surveillance, And Engagement Capability
 - Provide Surveillance Support For Forces Ashore
- Develop Upgrades To SM-2 To Increase TBMD Capability

BUILDS ON EXISTING NAVY / JOINT SYSTEMS

SEA BASED THEATER WIDE DEFENSE



APPROACH



WARFARE INNOVATION ENABLED BY TECHNOLOGY

M9C405.1

2/6/94

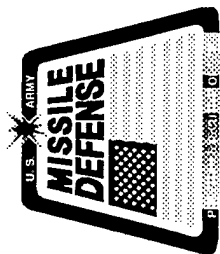


BMDO

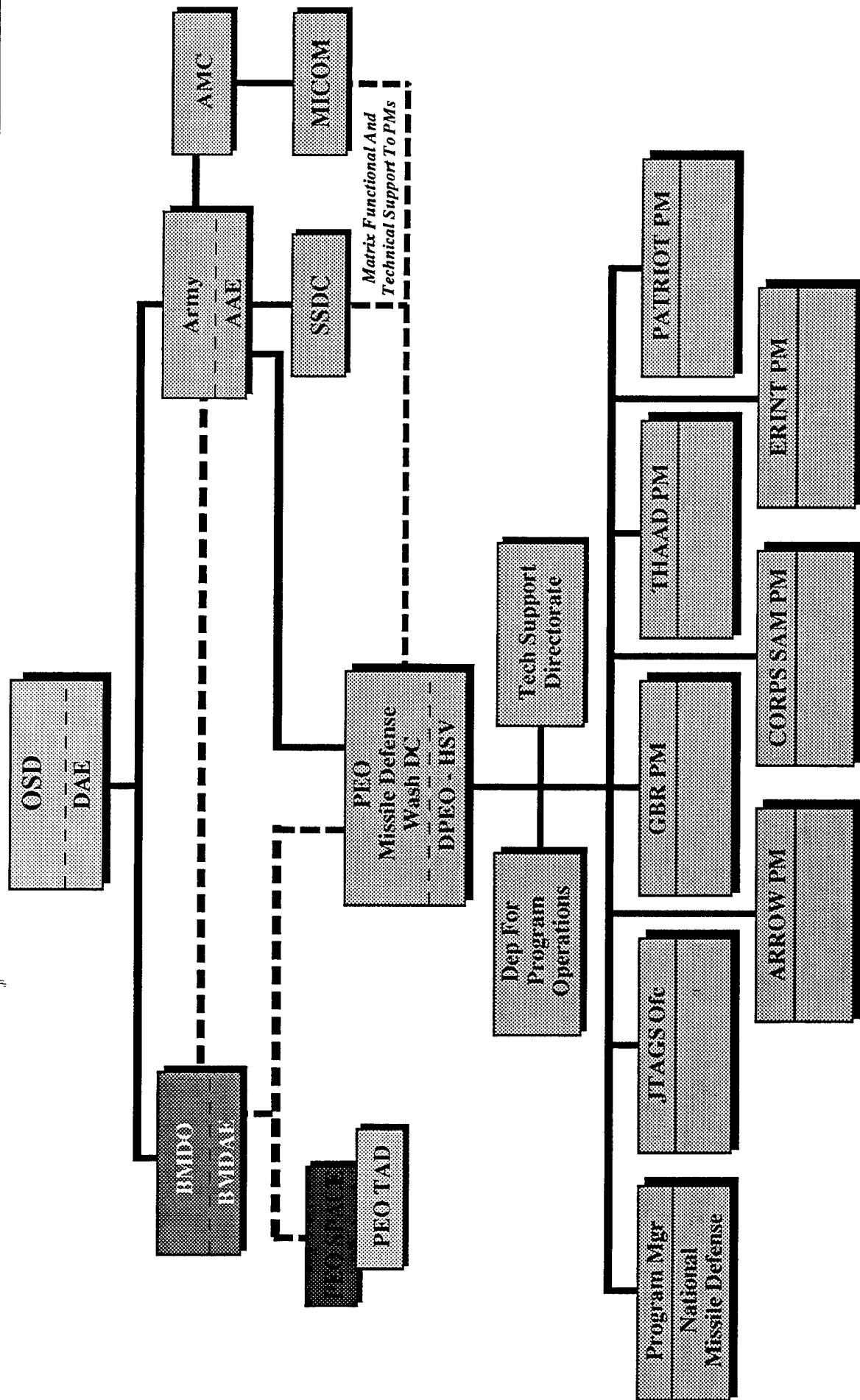
Advanced Briefing For Industry

**BG Richard A. Black
PEO Missile Defense**

1 March 1994



ARMY MISSILE DEFENSE ACQUISITION MANAGEMENT STRUCTURE

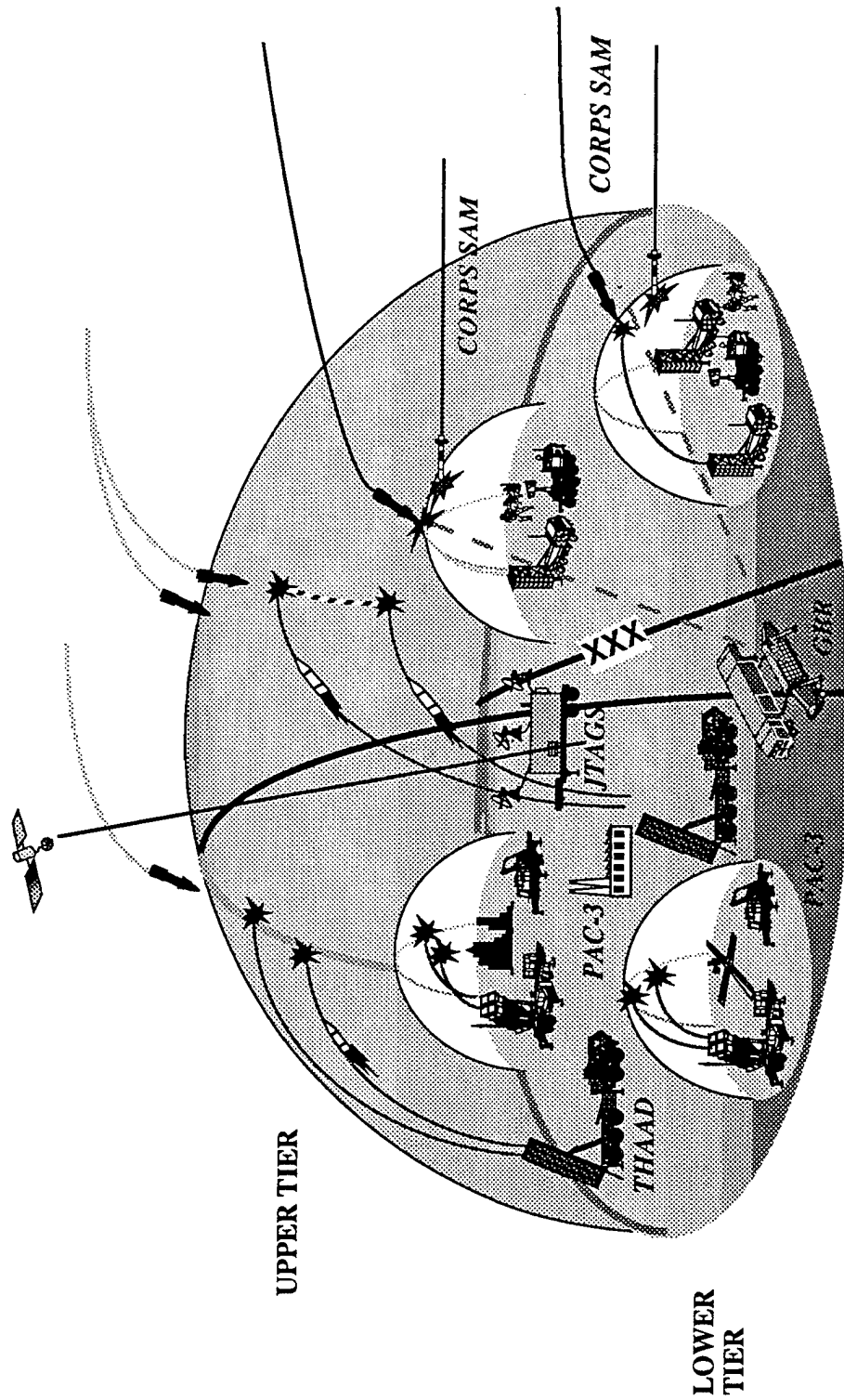
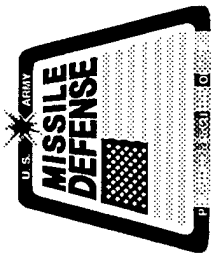




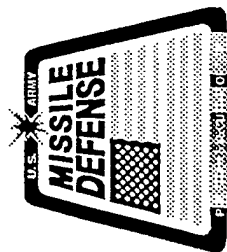
PEO MISSILE DEFENSE GOALS

- TMD – To Develop, Acquire, And Field Cost Effective And Operationally Effective Theater Missile Defense Systems At The Earliest Date Consistent With Availability Of Technology At An Acceptable Risk**
- NMD – To Conduct A Series Of Three Year Technology Readiness Demonstrations, To Preserve And Mature The Technology Base, And To Increase The Capability To Deploy A System If A Decision Is Made**

ATMD SYSTEMS



Provides Near Leak Proof TBM Defense



PHASED ATMD CAPABILITY

		Today	Mid 90's	Post 2000
Upper Tier	Weapon	---	THAAD UOES	THAAD Objective
	Sensor	---	GBR UOES	GBR Objective
	BMC ³ I	---	THAAD TOC	ADTOC
			JTAGS	JTAGS
Lower Tier	Weapon	PAC-2	PAC-3	PAC-3/CORPS SAM
	Sensor	PATRIOT Radar	PATRIOT Radar PH3 + Cueing	PATRIOT Radar PH3 + Cueing
	BMC ³ I	* BTOC + ICC	BTOC + ICC	ADTOC
			JTAGS	JTAGS

Legend

UOES - User Operational Evaluation System

BTOC - Battalion Tactical Operations Center

TOC - Tactical Operations Center

ICC - Information Coordination Center

ADTOC - Air Defense Tactical Operations Center

* 11 Of 12 Prototype BTOCs Fielded; Remainder By Mar 94

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94.39 BMDO APBI 22 FEB 94



PATRIOT



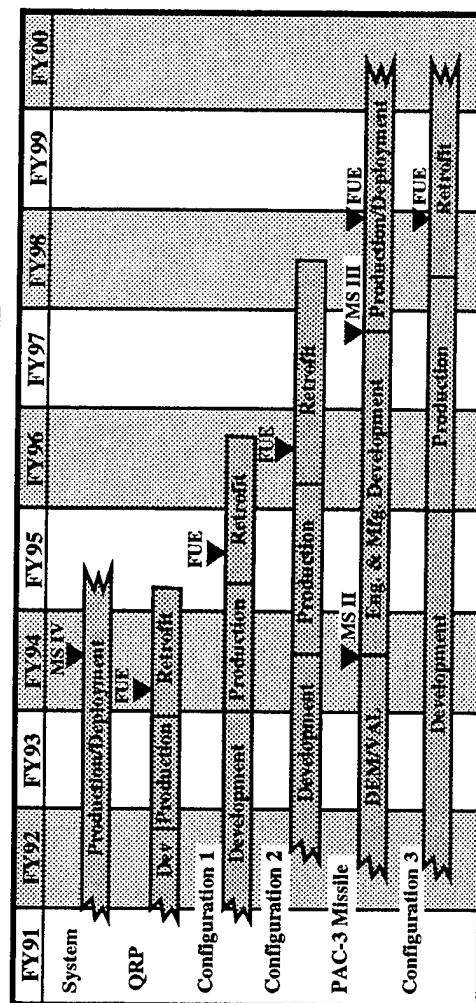
Objectives

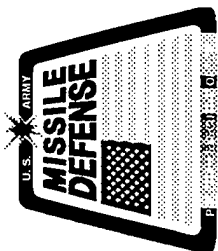
- **Provide System Enhancements That Fully Respond To PAC-3 ORD Requirements And STAR Threat**
- **Incrementally Satisfy ORD Requirements Through Phased Fielding Of System Enhancements**
- **Demonstrate Improved Capability Against Air Breathing And Tactical Ballistic Missile Threats**
- **Initial Fielding Of PAC-3 In FY98**

Status

- **Quick Reaction Program Being Fielded**
- **Guidance Enhanced Missile And Configuration 1 Production Approved**
- **Remaining PAC-3 Enhancements In Development**
- **Preparing For PAC-3 Missile Decision And EMD Contract Award**

Schedule

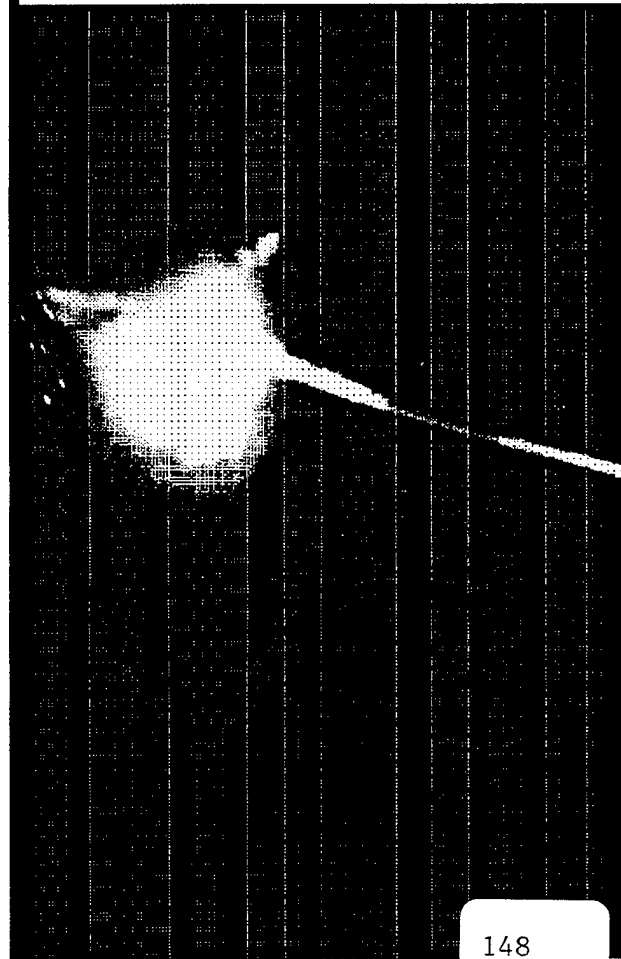




PATRIOT PLANNED PROCUREMENTS

Title	Kind Of Award	Release	Approximate Value	POC
PATRIOT ERINT Integration	Sole Source	3Q FY94	\$90 - 110M	Joann Ligon (205) 842-7818 LTC Andy Green (205) 955-3109
Multimode Missile (MMIM) Program	Sole Source	3Q FY94	\$275 - 300M	Randall Allen (205) 842-7819 LTC Andy Green (205) 955-3109
Depot Maintenance Plant Equipment (DMPE 11)	Sole Source	4Q FY94	\$4 - 6M	Joann Ligon (205) 842-7818 Dave Dalton (205) 955-3460

PRINT OVERVIEW



- **Lower Tier Defense Against Tactical Missiles, Both Ballistic And Maneuvering, And Complement PATRIOT's Capability Against Aircraft**
- **Potential Solution To Requirements For PAC-3 Missile; Also CORPS SAM, Marine Corps HAWK, And Navy For Ship Defense Requirements**

Status

- **Successful Missile Intercept Test On 30 November 93**
- **Successful Missile Intercept Test On 15 February 94 Against A Storm Target**
- **DAB For ERINT M/S II, PATRIOT M/S IV Scheduled 1 Mar 94**
- **Remaining Three Intercept Flights Scheduled During Mar-Aug 94 Timeframe**

Schedule

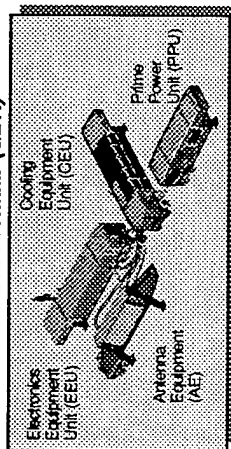
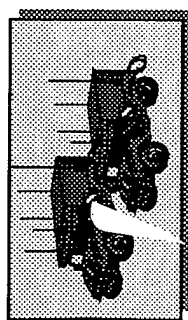
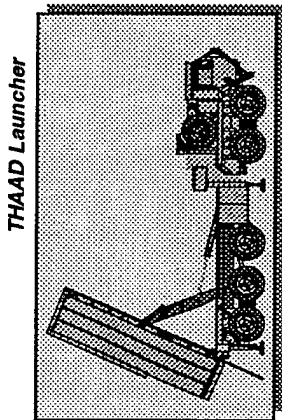
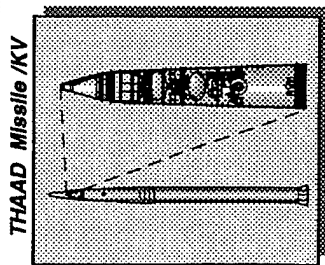
1994	1995	1996	1997	1998	1999
▲ MS IV				▲ MS III	
EMD (17) Flights					
				▲ FUE	
					LRIP
					FRP



ERINT PLANNED PROCUREMENTS

Title	Kind Of Award	Release	Approximate Value	POC
Extended Range Interceptor (ERINT) EMD	Set Aside For Loral Due To The Stage And Status Of The Program	3Q FY94	\$400 - 600M	Ms. V. Crandall (205) 876-2518

THEATER HIGH ALTITUDE AREA DEFENSE (THAAD) SYSTEM ELEMENTS



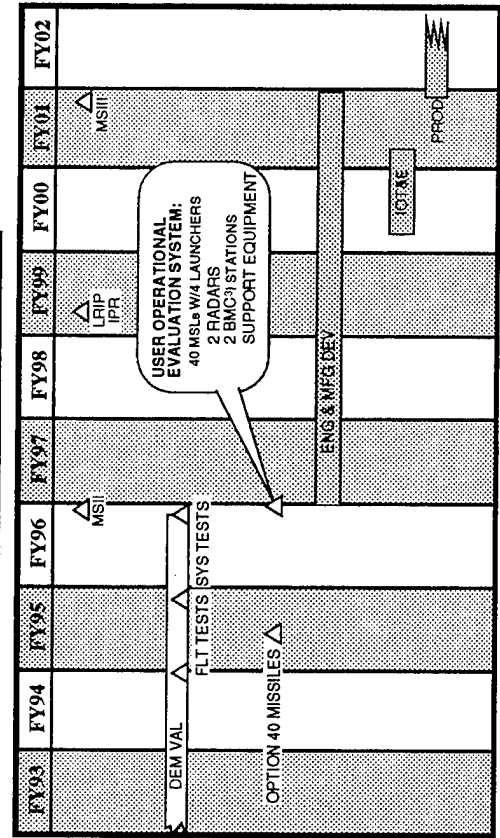
Objectives

- **Defends Against TBM Threats Using Hit-To-Kill Technology**
- **Upper Tier Of Two Tiered Defense**
- **Capable Of Both Endo- And Exo- Atmospheric Intercepts**
- **Uses GBR X-Band Radar**

Status

- **Final Design Review (CFDR) For DEM/VAL System Completed - Nov 93**
- **FDR Update - May 94**
- **Assembly/Subassembly Testing Ongoing**
- **Successful Prototype Hardware Fabrication**
- **Initial Test Flight - Fall 94**

Schedule





THAAD PLANNED PROCUREMENTS

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Title	Kind Of Award	Release	Approximate Value	POC
Engineering, Manufacturing, And Development (EMD)	**Sole Source	2Q FY96	*TBD	W. L. Schick (205) 955-3044
Systems Engineering And Technical Assistance (SETA)	SB Set Aside	2Q FY97	*TBD	W. L. Schick (205) 955-3044

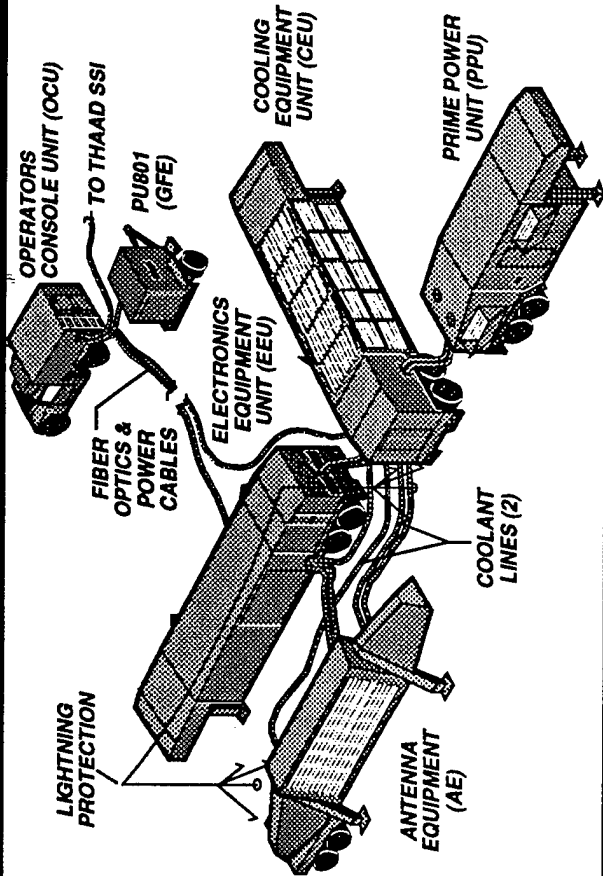
* Estimates Have Not Been Established

** Lockheed Missiles And Space Company, Sunnyvale, Ca.

UNCLASSIFIED



GROUND BASED RADAR



Objectives

- Provide Detection, Acquisition, Track Discrimination, And Interceptor Guidance And Control For The THAAD System
- Meet Strategic And Tactical Mobility Requirements
- User Operational Evaluation System (UOES) Deployable FY96; Objective System FY01
- Provide A Robust Technology Base For Strategic Radar Development

Status

- UOES CDR Completed Dec 93
- DEM/VAL Radar Assembly And In-Plant Testing Ongoing
- Granted Permission To Begin UOES Radar Fabrication
- Initial DEM/VAL Radar Full Power Test - Oct 94

Schedule

Milestones	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02
D/V	Pre-Production Assembly & Test		MS II			LRIP		MS III	
UOES		Fabrication Assembly & Test	UOES #1 Delivery	Flight Tests & Interceptor Support					
EMD			UOES #2 Delivery	Flight Tests & Interceptor Support	Contract Award	Design	Prototype	LRIP	Production

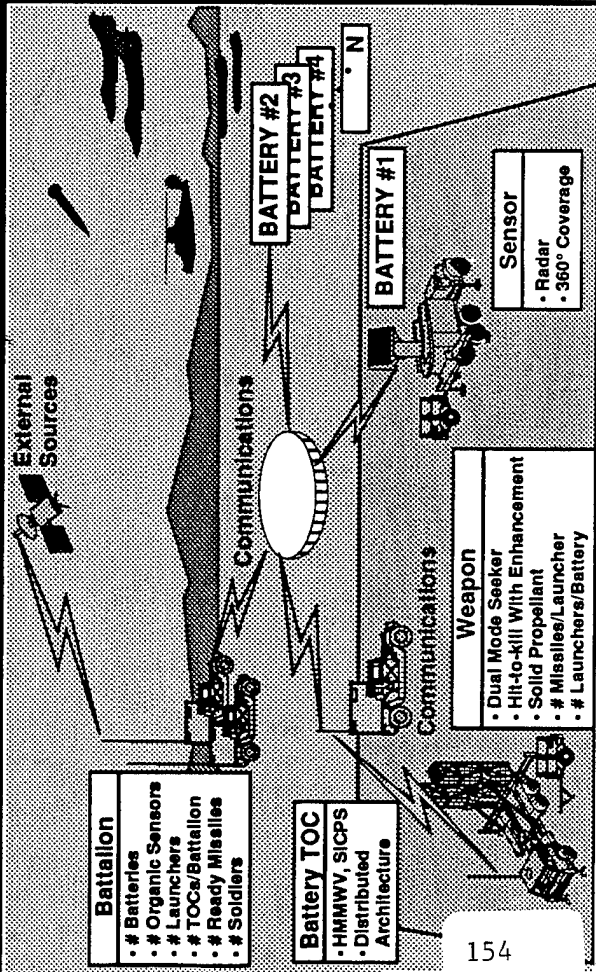


GBR PLANNED PROCUREMENTS

Title	Kind Of Award	Release	Approximate Value	POC
Network, Schedule, Risk Evaluation	Restricted 8A	1Q FY94	\$2.0 - 2.5M	Joanne Lewonczyk (205) 955-3407
Radar Development Analysis	Restricted	3Q FY94	\$3 - 4M	Joanne Lewonczyk (205) 955-3407
Discrimination Analysis	Competitive	1Q FY95	\$6 - 7.5M	Joanne Lewonczyk (205) 955-3407
TMD EMD	Competitive	1Q FY96	Over \$2B	Melissa Webb (205) 955-3438
Testability	Competitive	2Q FY97	\$3 - 4M	Joanne Lewonczyk (205) 955-3407



CORPS SAM



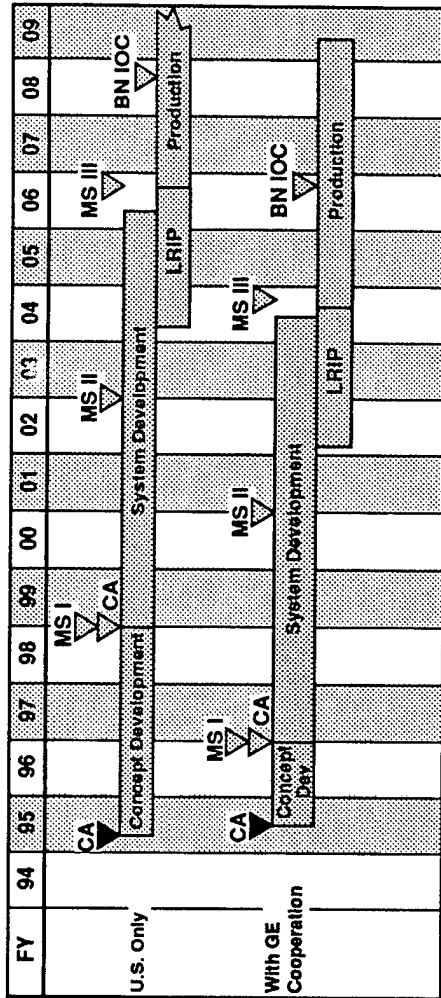
Objectives

- 360 Degrees Protection Against TBMs And CMs
- Transportability Consistent With Contingency Operations
- Mobility Consistent With Protection Of Maneuver Force
- Highly Survivable And Operationally Versatile Distributed Architecture
- High Firepower With Low Manpower And Low Airlift

Status

- CORPS SAM Need/Requirements Are Defined
- Draft RFP For Concept Development Is Near Completion
- Discussions For Cooperative Programs With GE Are On-Going
- Decision Date Is Uncertain
- Funding For CORPS SAM Is Uncertain

Schedule



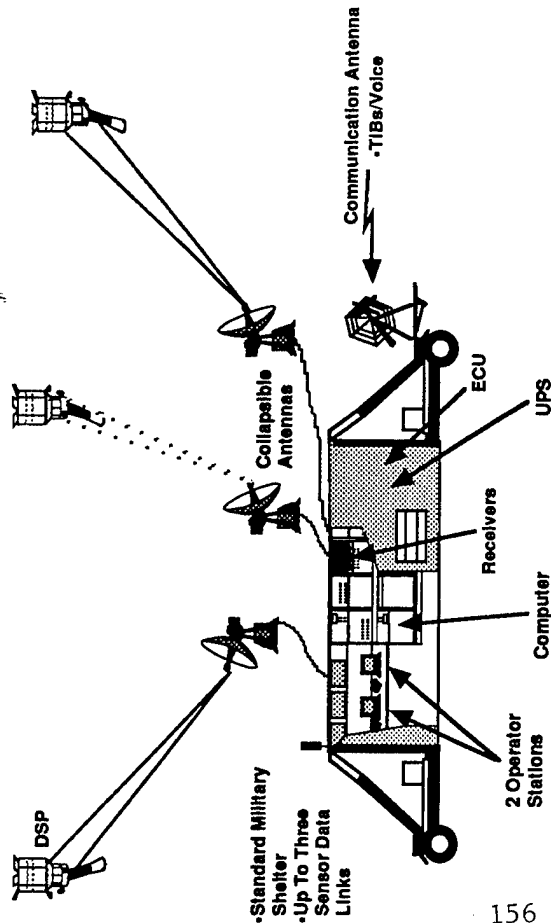


CORPS SAM PLANNED PROCUREMENTS

Title	Kind Of Award	Release	Approximate Value	POC
Concept Development	Limited Competition	Draft 2Q FY94 Final 3Q FY94	TBD	S. Pruzinsky (205) 876-3939 R. Colvin (205) 722-1753
System Development	Limited Competition	Draft 1Q FY98 Final 2Q FY98	TBD	S. Pruzinsky (205) 876-3939 R. Colvin (205) 722-1753



JOINT TACTICAL GROUND STATION (JTAGS)



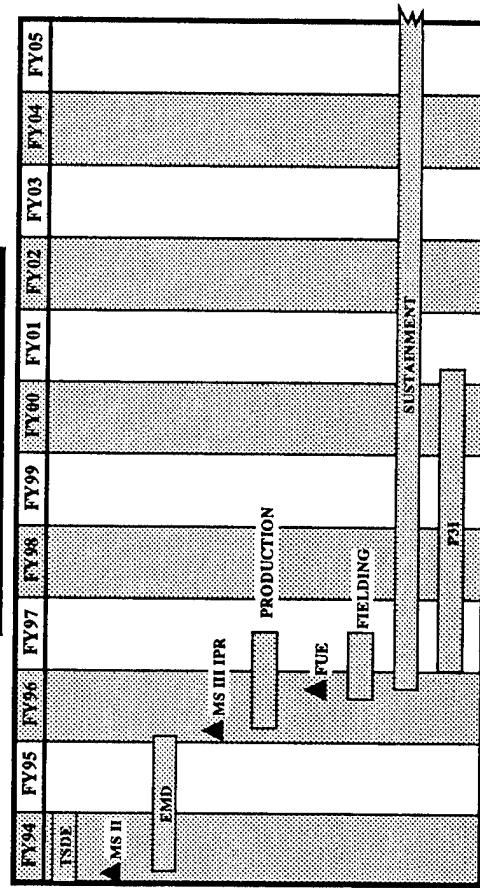
Objectives

- Field Joint Tactical Ground Stations To Provide In-Theater Real Time Tactical Warning, Alerting And Cueing Information Using Direct Down-Link From DSP And Follow-On Space-Based Sensors

Status

- TSD Prototype In USAREUR - Operating 80 Hours/Week Providing Contingency Support And Available For Exercises
- TSDE Transportable Prototype
 - Arrived At WSMR 27 August 1993
 - Transportability Demonstrated In Movement To WSMR
 - Contractor Testing Completed October 1993
 - Government Testing Completed January 1994
- Product Office Preparing Procurement And MS II Documentation
 - Milestone II IPR March 1994
 - Joint Working Group To Support IPR Preparation
 - RFP For EMD With Production Options Issued
 - Army Responding To Tactical Event System Implementation Plan

Schedule



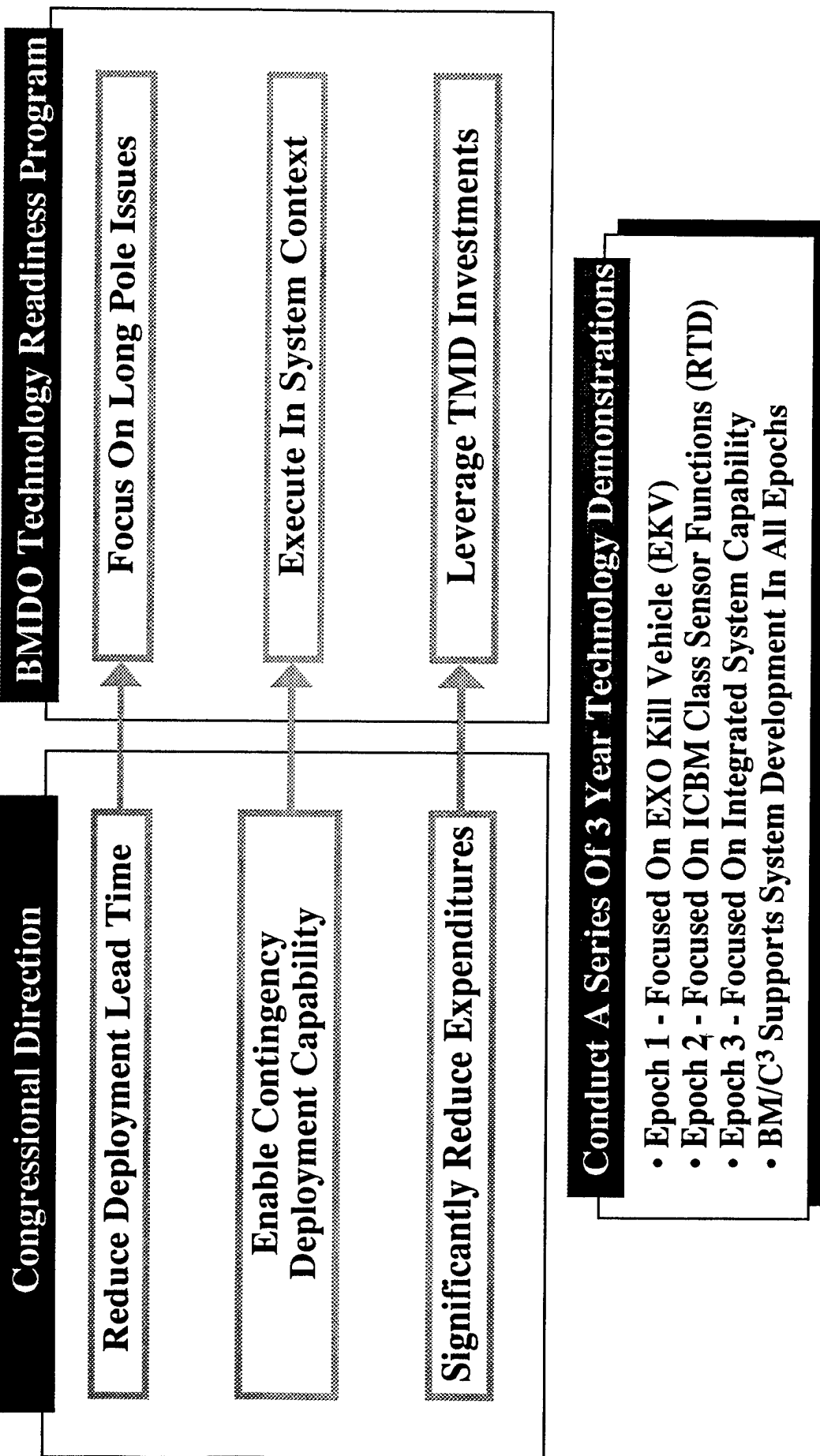


JTAGS PLANNED PROCUREMENTS

Title	Kind Of Award	Release	Approximate Value	POC
JTAGS EMD And Production	Full And Open Competition	2Q FY94	EMD: \$15 - 25M Production: \$25 - 35M	B. Williams (205) 955-3440 C. Raynor (205) 722-1144

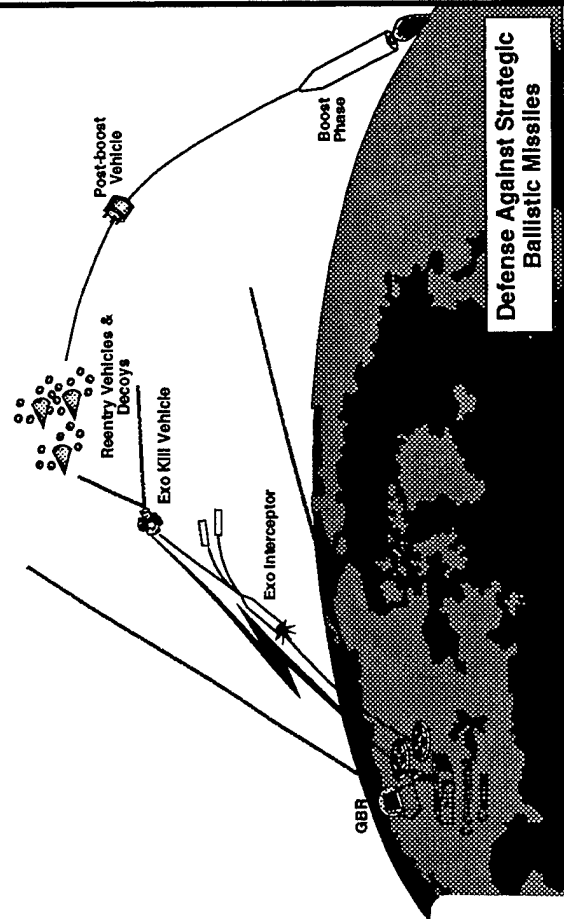


PROGRAM GUIDANCE FOR NMD





NMD TECH READINESS PROGRAM

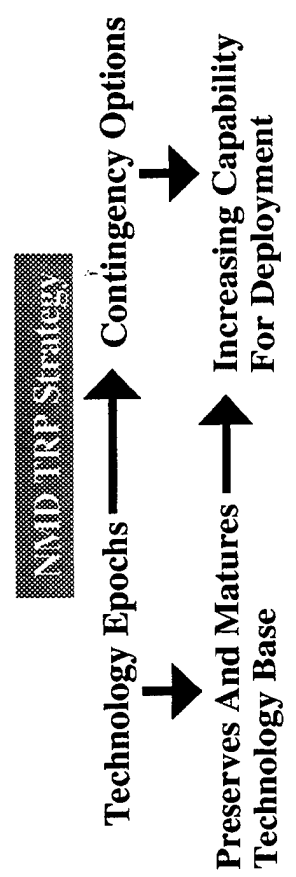


Objectives

- Advanced System Capability Balanced With Deployment Readiness
- Maintenance Of Contingency Options With Reduced Deployment Lead Times
- Address Technology Long Poles And Capitalize On TMD Development
- Improve Interceptor, Sensor, And BM/C³I Technology

Status

- Removed NMD As A Major Acquisition Program
- Replaced With A Technology Readiness Program That Provides:



Schedule

	EPOCH I			EPOCH II			EPOCH III		
	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02
Interceptor KV									
Radar									
Engagement Planning/COMM									
System Integration									
Contingency Deployment Planning									



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MY MESSAGE

The Army And The PEO Missile Defense

- Are Responding To The Threat
- Are Responding To Congressional Direction
- Have A Sound Working Program Strategy
- That Program Strategy Requires Four Elements
 - PATRIOT PAC-3
 - THAAD
 - CORPS SAM
 - NMD Technology Readiness Program

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1994 Planned Procurements

from

**the Ballistic Missile Defense Organization,
the United States Army Space and Strategic Defense Command
the United States Air Force,
& Defense Nuclear Agency**

Presented at the 1994 BMDO Advance Planning Briefing for Industry

**Ritz-Carlton Hotel-Tysons Corner, VA
March 1-2, 1994**

**BALLISTIC
MISSILE
DEFENSE
ORGANIZATION**

**Forecast of Expected
Contract Opportunities
for FY94/95**

March 1994

Office of Primary Responsibility: Contracts



DEPARTMENT OF DEFENSE
BALLISTIC MISSILE DEFENSE ORGANIZATION
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DCTP

February 18, 1994

MEMORANDUM FOR RECIPIENTS

SUBJECT: Ballistic Missile Defense Organization (BMDO) Forecast
of Expected Contract Opportunities for Fiscal Year 1994
and Fiscal Year 1995 (FY1994/FY1995)

This forecast for BMDO contract opportunities has been developed to provide industry the maximum amount of information on FY1994/FY1995 contract opportunities, including both new contracting opportunities and exercises of existing contract options. Early identification and publicizing of planned acquisitions will encourage broader competition by allowing small business, small disadvantaged business, large business, and our allies to plan selectively for these future requirements.

This Forecast of Expected Contract Opportunities contains only those anticipated procurement actions which will be awarded by BMDO. A significant portion of the BMD requirements are fulfilled through contracts issued by other Government agencies, such as the Army, Air Force, Navy, Defense Nuclear Agency and the Department of Energy. We recommend contacting those organizations for information on other BMD related business opportunities.

Your comments on the utility of this document and your recommendations for improvements are encouraged. General questions should be addressed to Mr. Stephen Moss (703) 693-1553, while questions concerning specific procurements should be addressed to the Contracting Officer (PCO) identified for that procurement at (703) 693-1544.

Sincerely,

A handwritten signature in cursive script that reads "Stephen M. Moss".

Stephen M. Moss
Assistant Director for Contract
Policy and Special Projects

CONTRACT POLICY & SPECIAL PROJECTS DIVISION (DCTP)

Contract Policy Support

Provide support to DCTP in research, policy preparation, training and the management of conferences and working groups. As required conduct surveys, reviews and studies directly related to BMDO contracting. Compile data in preparing briefings, routine reports and responses. Assist in procurement reporting, document control and file maintenance. Assist in the evaluation of management information systems. Recommend effective tools and approaches to track workload, procurement milestones and other management data.

CONTRACT (Company) : SDIO84-93-C-0013 (Digital Systems Research)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Dec 94

EST. VALUE (\$M): 0.864 for FY94

PRGM MGR: Mr. Stephen Moss

PCO: Ms. Karen Reuter

CONTRACT OPERATIONS DIVISION (DCTO)

Contract Policy Support

Support DCTO contracting officers in: acquisition planning; drafting of solicitations; contract award; contract management; and acquisition analysis. Provide acquisition and procurement support to the BMDO. Provide draft procurement schedules and milestones. Assist in preparing or reviewing acquisition plans, source selection plans, CBD announcements, Statements of Work Contract Data Requirements Lists and Request for Proposals. Develop award fee plans/guides and other acquisition documents. Draft source selection guidelines and assist in administrative support of source selection process. Assist with contract modifications, contract file preparation and closeout of completed contracts.

CONTRACT (Company) : SDIO84-93-C-0012 (Digital Systems Research)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Dec 94

EST. VALUE (\$M): 4.784 for FY94

PRGM MGR: Mr. Michael Allison

PCO: Ms. Karen Reuter

MANAGEMENT OPERATIONS DIRECTORATE (DMO)

Management Support

Management Operations SETA Support.

CONTRACT (Company) : SDIO84-92-C-0023 (Dichroma Inc)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Jul 94

EST. VALUE (\$M): 0.656 for FY94

PRGM MGR: Mr. Edward Gray

PCO: Ms. Karen Reuter

DEPUTY FOR PROGRAM OPERATIONS (DP)

DP SETA Consolidation [8(a)]

Provide a single source for the consolidation of support currently provided by contracts SDIO84-91-C-0018, 90-C-0012, and 89-C-0042. Support includes program assessment, contract assessment, and facilities management for DPC; financial management and accounting for DPF; and operation of the VPIC for DPI.

CONTRACT (Company) : HQ0006-94-R-0001

TYPE OF ACTION : New Contract

PLANNED AWARD DATE: Sep 94

EST. VALUE (\$M): 1.0 for FY94

PRGM MGR: Mr. Billy Love

PCO: Maj. John Swan

Support Services

Internal independent review support services.

CONTRACT (Company) : HQ0006-93-C-0005 (Sherikon Inc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Jul 95

EST. VALUE (\$M): 0.442 for FY94

PRGM MGR: Mr. Gary Ramos

PCO: Ms. Karen Reuter

Support Services

Computer-related support services for requirements analysis, data entry, and data quality assurance for DPC and DPF.

CONTRACT (Company) : SDIO84-92-C-0027 (Arist Corp.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Oct 94

EST. VALUE (\$M): 0.500 for FY94

PRGM MGR: Mr. Billy Love

PCO: Ms. Karen Reuter

PLANNING & CONTROL DIRECTORATE (DPC)

Management Support Services

Program planning policy development and support.

CONTRACT (Company) : SDIO84-93-C-0025 (H.J. Ford Assoc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: May 94

EST. VALUE (\$M): 0.600 for FY94

PRGM MGR: Mr. Jack Hardgrove

PCO: Ms. Karen Reuter

DPI SETA

Information Resource Management support including Information Architecture and Security.

CONTRACT (Company) : SDIO84-93-C-0024 (BDM Federal, Inc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): 1.175 for FY94
PRGM MGR: Ms. Jeanette Clay **PCO:** Ms. Karen Reuter

COST ESTIMATING & ANALYSIS DIRECTORATE (DPE)**Management Support Services**

Cost estimating and analysis support to DPE.

CONTRACT (Company) : SDIO84-93-C-0026 (Applied Research, Inc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): 5.081 for FY94
PRGM MGR: Mr. Lowell Naef **PCO:** Ms. Karen Reuter

INFORMATION SYSTEMS DIRECTORATE (DPI)**DPI Information Systems Support**

Information resources management, accreditation and information systems architecture design services for the Information System Directorate.

CONTRACT (Company) : HQ0006-94-R-0008
TYPE OF ACTION : New Contract
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): 0.45 for FY94
PRGM MGR: MAJ Steven Morrese **PCO:** Ms. Karen Reuter

Technical Information Center (TIC)

Collect, catalog and store scientific, engineering and policy data and information relevant to the BMD. Archive relevant BMD data Analyze and assess data and analytical methodologies. Support coordination of data gathering activities with scientific and technical information activities, such as the Defense Technical Information Center (DTIC). Assist in technology transfer within the BMDO and with other authorized users of U.S. Government Technology.

CONTRACT (Company) : SDIO84-90-C-0002 (Dynamics Research Corp.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Aug 94
EST. VALUE (\$M): 0.983 for FY94
PRGM MGR: Mr. Roy Huffman **PCO:** Mr. Robert Frey

Graphics Support

Provide publishing and graphics production services to support the Director, BMDO. Output includes the publication of significant documents such as the annual Report to Congress, Congressional budget justification material, financial status on a recurring basis, directories, and major events calendars for the BMDO and support commands.

CONTRACT (Company) : SDIO84-90-C-0012 (Comprehensive Tech. Intl.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: May 94

EST. VALUE (\$M): 1.621 for FY94

PRGM MGR: MAJ Steve Morrese

PCO: Mr. Robert Frey

BMDO Information Systems Support

This effort provides support for the classified computer operations center and Information Center (IC) which support BMDO. This support involves three main areas; (1) facilities operation and management, (2) operating systems software support, and (3) IC support. This effort also includes support for any future purchases of Commercial off-the-shelf software and any new hardware.

CONTRACT (Company) : SDIO84-91-C-0004 (I-NET)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Feb 95

EST. VALUE (\$M): 1.07 for FY95

PRGM MGR: Mr. Christopher Capilongo

PCO: Ms. Karen Reuter

Development of an Information System Architecture and the Program Information Management System (SPIMS) Support

Provide software development support to the BMDO Information System Directorate.

CONTRACT (Company) : SDIO84-92-C-0020 (BDM Federal, Inc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: May 94

EST. VALUE (\$M): 5.244 for FY94

PRGM MGR: Ms. Jeanette Clay

PCO: Ms. Karen Reuter

Operation and Maintenance of Management Information Center Support

Provide support services for the Management Information Center.

CONTRACT (Company) : SDIO84-92-C-0024 (ARS Limited)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: May 94

EST. VALUE (\$M): 0.517 for FY94

PRGM MGR: Mr. Christopher Capilongo

PCO: Ms. Karen Reuter

DEPUTY FOR STRATEGIC RELATIONS (DR)

System Analysis

System Analysis on alternative BMDS for predicting performance level and interpreting simulation models, & resolve issues over D Phase.

CONTRACT (Company) : HQ0006-94-R-0006
TYPE OF ACTION : New Contract
PLANNED AWARD DATE: Aug 94
EST. VALUE (\$M): TBD for FY94
PRGM MGR: Dr. Charles Infosino PCO: Ms. Karen Reuter

Administrative Support

Provide research , writing and administrative support, for the office of the Historian.

CONTRACT (Company) : SDIO84-92-C-0028 (Adv. Resource Technologies)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Jul 94
EST. VALUE (\$M): 0.115 for FY94
PRGM MGR: Dr. Donald Baucom PCO: Ms. Karen Reuter

INTERNATIONAL AFFAIRS DIRECTORATE (DRI)

Multinational Technical Support (MINTS)

Assist the Multinational Programs Division (DRI) in the Deputy for Strategic Relations Directorate BMDO, in the evaluation and development of threat documentation to support Allied participation. Assist in foreign visit request processing and multinational conference support.

CONTRACT (Company) : SDIO84-91-C-0030 (B K Dynamics)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Oct 94
EST. VALUE (\$M): 1.075 for FY95
PRGM MGR: LTCOL Mauro Farinelli PCO: Ms. Karen Reuter

EXTERNAL AFFAIRS DIRECTORATE (DRE)

Legislative Affairs Support

Provides support to BMDO in order to enhance its capability to receive and coordinate legislative affairs information and its ability to conduct security and policy reviews on public release documents.

CONTRACT (Company) : SDIO84-92-C-0021 (SCICOMM)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): 0.673 for FY94
PRGM MGR: Mr. Thomas Johnson PCO: Ms. Karen Reuter

SECURITY, INTELLIGENCE & COUNTERMEASURES DIR. (DSI)

Intelligence Threat Office SETA Support

Provide Technical and Programmatic Support for the Intelligence Threat Office.

CONTRACT (Company) : HQ0006-93-C-0016 (System Planning Corp.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Jul 95
EST. VALUE (\$M): 4.590 for FY95
PRGM MGR: CAPT Paul Tilson **PCO:** Mr. Robert Frey

DSI SETA

CONTRACT (Company) : SDIO84-93-C-0023 (Booz Allen & Hamilton)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): 2.278 for FY94
PRGM MGR: Mr. Robert Kranc **PCO:** Ms. Karen Reuter

COUNTERMEASURES DIVISION (DSIM)

Countermeasure Assessment & Integration Support Area 2

The contractor will execute and coordinate various elements of the Countermeasures Technical Program to ensure that the highest priority countermeasures are evaluated in an optimal manner considering technical risk, cost to the countermeasures program and risk to the SDS system.

CONTRACT (Company) : SDIO84-91-C-0011 (Sys. Plan. Corp.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Aug 94
EST. VALUE (\$M): 5.300 for FY94
PRGM MGR: Ms. Bertina Gillis **PCO:** Mr. Robert Frey

Countermeasure Assessment & Integration Support Area 3

Technical Evaluation Oversight and Strategic Analysis. Contractor will conduct analyses of strategic offensive-defensive environment; use interactive gaming and simulation; conduct special studies; and conduct evaluations to examine potential countermeasures that could effect the development and deployment of the strategic defense system.

CONTRACT (Company) : SDIO84-91-C-0012 (Sys. Plan. Corp.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Aug 94
EST. VALUE (\$M): 2.01 for FY94
PRGM MGR: LTC Jim Ahern **PCO:** Mr. Robert Frey

Countermeasure Assessment & Integration Support Area 1

Countermeasures Assessments and Integration Program Contract will provide independent analysis of BMD system concept to determine potential design fragilities. Coordinate various elements of assessment program and recommend tests and experiments to resolve issues. Update and maintain CM database and library.

CONTRACT (Company) : SDIO84-91-C-0019 (SAIC)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Aug 94

EST. VALUE (\$M): 2.056 for FY94

PRGM MGR: Col. Robert Swedenburg

PCO: Mr. Robert Frey

SECURITY DIVISION (DSIS)

Management of Access Control Center (ACC)

Man and maintain the BMDO Access Control Center (ACC) 24 hours per day.

CONTRACT (Company) : SDIO84-90-C-0013 (Beta Analytics, Inc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Mar 94

EST. VALUE (\$M): 0.672 for FY94

PRGM MGR: Col. Robert R. Peavey, USAF

PCO: Ms. Karen Reuter

Management of Access Control Center (ACC)

Man and maintain the BMDO Access Control Center (ACC) 24 hours per day.

CONTRACT (Company) : SDIO84-90-C-0013 (Beta Analytics, Inc.)

TYPE OF ACTION : Follow-on

PLANNED AWARD DATE: Mar 95

EST. VALUE (\$M): 0.336 for FY95

PRGM MGR: Col. Robert R. Peavey, USAF

PCO: Ms. Karen Reuter

DEPUTY FOR TECHNOLOGY (DT)

Power and power conditioning for DT special projects.

CONTRACT (Company) : SDIO84-93-C-0010 (Booz Allen & Hamilton)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Jan 95

EST. VALUE (\$M): TBD for FY95

PRGM MGR: LTC Frederick Tarantino

PCO: Mr. Robert Frey

INTERCEPTOR TECHNOLOGY (DTC)

Atmospheric Interceptor Technology

CONTRACT (Company) : SDIO84-91-C-0025 (Lockheed Mis & Space Co.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: 4th Qtr 95
EST. VALUE (\$M): TBD for FY95
PRGM MGR: MAJ Earl Hill **PCO:** MAJ John Swan

ENDO-LEAP

CONTRACT (Company) : SDIO84-91-C-0026 (McDonnell Douglas)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: 4th Qtr 95
EST. VALUE (\$M): TBD for FY95
PRGM MGR: MAJ Earl Hill **PCO:** MAJ John Swan

Neumonic Sensors

CONTRACT (Company) : SDIO84-91-C-0028 (AEDAR Corp.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Aug 94
EST. VALUE (\$M): 0.336 for FY94
PRGM MGR: Dr. Richard Curtis **PCO:** Maj. John Swan

Interceptor Technical

Interceptor Technical SPT/SETA TNS/TNC and MSX (TRPL SETA).

CONTRACT (Company) : SDIO84-92-D-0001 (Analytic Services Inc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): 2.700 for FY94
PRGM MGR: MAJ Earl Hill **PCO:** Maj. John Swan

Maintenance Support

Operations and maintenance of the Aero-optic Evaluation Center.

CONTRACT (Company) : SDIO84-93-C-0001 (CALSPAN-UB Research Ctr.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): 1.479 for FY94
PRGM MGR: Dr. Billy J. Walker **PCO:** Maj. John Swan

DIRECTED ENERGY DIRECTORATE (DTD)

Kinetic Energy Boost Phase Intercept Office Services.

CONTRACT (Company) : HQ0006-94-R-0005
TYPE OF ACTION : New Contract
PLANNED AWARD DATE: Sep 94
EST. VALUE (\$M): TBD for FY94
PRGM MGR: MAJ Michael Fisher
LtCol. Dale Tietz
PCO: Mr. Bob Frey

ALPHA Device Interface

ALPHA Device Interface with ALI.

CONTRACT (Company) : SDIO84-92-C-0002 (TRW Inc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Apr 94
EST. VALUE (\$M): 3.301 for FY94
PRGM MGR: Dr. Lyn Skolnik
PCO: Mr. Robert Frey

High Energy Laser (HEL)

CONTRACT (Company) : SDIO84-92-C-0008 (W.J. Schafer Assoc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Jan 95
EST. VALUE (\$M): 21.4 for FY95
PRGM MGR: Mr. Neil Griff
PCO: Mr. Robert Frey

Boost Phase Intercept

Boost Phase Intercept Concept study with Israeli Mod. Reference number SDIO84-93-C-0008.

CONTRACT (Company) : SDIO84-93-C-0008 (Wales Ltd.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Jul 94
EST. VALUE (\$M): 1.08 for FY94
PRGM MGR: LtCol. Dale Tietz
PCO: LCDR Dan Smith

INNOVATIVE SCIENCE & TECHNOLOGY DIRECTORATE (DTI)

Small Business Support

Maintenance and enhancement of the BMDO Small Business Innovative Research Program database and support of the Office Outreach and Small Business transition activities.

CONTRACT (Company) : HQ0006-93-C-0004 (Futron Corp.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Aug 95

EST. VALUE (\$M): 0.545 for FY94

PRGM MGR: Mr. Carl Nelson

PCO: Maj. John Swan

Engineering Support

DTI scientific, engineering, and technical assistance.

CONTRACT (Company) : SDIO84-91-C-0034 (Booz Allen & Hamilton, Inc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Oct 94

EST. VALUE (\$M): 0.669 for FY95

PRGM MGR: Dr. Kepi Wu

PCO: MAJ John Swan

Engineering Support

DTI scientific, engineering, and technical assistance.

CONTRACT (Company) : SDIO84-91-C-0035 (W.J. Schafer Assoc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Oct 94

EST. VALUE (\$M): 0.742 for FY95

PRGM MGR: Dr. Kepi Wu

PCO: MAJ John Swan

Technical Support

Technical Support for materials and structures program.

CONTRACT (Company) : SDIO84-93-C-0011 (W.J. Schafer Assoc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Jun 95

EST. VALUE (\$M): 1.940 for FY95

PRGM MGR: LtCol. Michael Obal

PCO: Maj. John Swan

Energetic Materials Without Chlorine

Test advanced solid propellant energetic materials. Establish integrated program with U.S. & Russian technical companies/labs to test samples of new propellants, with special emphasis on those without chlorine. Conduct small motor validation and other standard tests in Russia on a cooperative basis with U.S. and Russian organizations. Evaluate new propellants using small batch (BATES type) motors, and conduct standard physical property and hazard tests. Evaluate tailorability and stability of new propellants using laboratory scale experiments.

CONTRACT (Company) :
TYPE OF ACTION : New Contract, Sole Source
PLANNED AWARD DATE: Jun 94
EST. VALUE (\$M): 0.200 for FY94
PRGM MGR: Mr. Leonard Caveny **PCO:**

Skipper Phase II

Conduct Phase II of the Skipper contract. Effort will include completing satellite and sensor designs, fabrication and test of flight sensors, integrating flight experiments with satellite provided under a Utah State subcontract with the Moscow Aviation Institute, followed by testing of the integrated sensor/satellite system. Effort also includes support to integration of the satellite into the blniya booster, and on orbit operations support.

CONTRACT (Company) : HQ0006-94-C-0008 (Space Dynamics Lab/Utah State Univ)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Jan 95
EST. VALUE (\$M): 3.4 for FY95
PRGM MGR: Mr. Leonard Caveny **PCO:** LCDR Dan Smith

Space Active Modular Materials Experiment (SAMMES)

Exercise option of the SAMMES contract to procure second set of flight hardware.

CONTRACT (Company) : HQ0006-91-C-0027 (Physical Sciences, Inc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Oct 94
EST. VALUE (\$M): TBD for FY94
PRGM MGR: LtCol. M. Obal **PCO:** Maj. John Swan

SENSOR TECHNOLOGY DIRECTORATE (DTS)

Sensor's Lab Support

CONTRACT (Company) : SDIO84-88-C-0026 (Utah St. Univ.)
TYPE OF ACTION :
PLANNED AWARD DATE: Dec 94
EST. VALUE (\$M): 1.000 for FY95
PRGM MGR: MAJ Ralph McClain **PCO:** LCDR Dan Smith

System Engr & Tech Assistance for BMDO Survivability Program

Provide analysis of research and development efforts to the Survivability Technology Program which may be used in program planning and investment strategy activities.

CONTRACT (Company) : SDIO84-91-C-0003 (Booz Allen & Hamilton, Inc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Feb 94
EST. VALUE (\$M): 0.300 for FY94
PRGM MGR: Maj. Garret Schneider **PCO:** LCDR Dan Smith

MSX Data Processing Center

CONTRACT (Company) : SDIO84-92-C-0016 (Utah State Univ.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Aug 95
EST. VALUE (\$M): 3.100 for FY95
PRGM MGR: MAJ Ralph McClain **PCO:** LCDR Dan Smith

Sensor Technician

Sensor technician SPT/SETA TNS/TNC and MSX (TRPL SETA).

CONTRACT (Company) : HQ0006-94-C-0009 (Nichols Research Corp.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Jun 94
EST. VALUE (\$M): 7.700 for FY94
PRGM MGR: Capt. Scott Larrimore **PCO:** LCDR Dan Smith

System Engr & Tech Assistance for BMDO Survivability Program

Analysis of research and development efforts relating to survivability technology for use in program planning, investment strategy and integrated acquisition program support.

CONTRACT (Company) : SDIO84-91-C-0003
TYPE OF ACTION : Follow-on
PLANNED AWARD DATE: Feb 95
EST. VALUE (\$M): 0.500 for FY95
PRGM MGR: Maj. Garret Schneider **PCO:** LCDR Dan Smith

DEPUTY FOR STRATEGIC DEFENSE (GS)

BATTLE MANAGEMENT, COMMAND & CONTROL (GSB)

BMD Integration/BMC³

Follow-on contract to the current Systems Engineering and Integration contract for BMDO. Contract will provide system engineering services to BMD in both NMD and TMD areas. Will support integration of all services missile defense systems. Will be primary test and evaluation support contractor with responsibility for simulations and test environments. Will provide technology readiness assessments and deployment planning for NMD. Will provide a distributed rapid prototyping capability for BMC³ and will build a prototype BMC³ capability for NMD Epoch 1.

CONTRACT (Company) : (Martin Marietta/GE SEIC)

TYPE OF ACTION : Full and Open Competition

PLANNED AWARD DATE: 2nd Qtr FY 95

EST. VALUE (\$M): 50.8 for FY95

PRGM MGR: Maj. John Mahony

PCO: Mr. Peter Van Name

GLOBAL MISSILE DEFENSE (GSG)

SETA for GM

Scientific, Engineering and Technical Assistance services for the General Manager.

CONTRACT (Company) : SDIO84-93-C-0017/0018/0019

TYPE OF ACTION : Follow-On / Full and Open Competition

PLANNED AWARD DATE: Jun 94

EST. VALUE (\$M): TBD for FY95

PRGM MGR: LtCol. Efrem Strain

PCO: Mr. Peter Van Name

SYSTEMS ENGINEERING DIRECTORATE (GSI)

SE&I for SDS

CONTRACT (Company) : SDIO84-88-C-0020 (Martin Marietta - [GE])

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: May 95

EST. VALUE (\$M): TBD for FY95

PRGM MGR: CDR Robert Upchurch

PCO: Mr. Marc Lesser

Target Oriented Tracking System

Development of an end-to-end tracking capability with Theater Missile Defense Applications. This will build on work performed under Target Oriented Tracking System.

CONTRACT (Company) : SDIO84-92-C-0010

TYPE OF ACTION : Follow-On

PLANNED AWARD DATE: Oct 94

EST. VALUE (\$M): 1.500 for FY95

PRGM MGR: CDR Robert Upchurch

PCO: Mr. Peter Van Name

System Engineering and Integration

Provide BMDO with integration engineering and analysis, test planning, NMD contingency deployment planning, NMD technology readiness program planning and develop/build BMC3 prototype to support Epoch 1.

CONTRACT (Company) :

TYPE OF ACTION : New Contract / Full and Open Competition

PLANNED AWARD DATE: Mar 95

EST. VALUE (\$M): 46.000 for FY95

PRGM MGR: CDR Robert Upchurch

PCO: Mr. Marc Lesser

System Engineering and Integration

Provide sustaining integration and engineering analysis and support during competition for follow-on SEI/BMC3 contract.

CONTRACT (Company) : HQ0006-94-C-0013 (Martin Marietta)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Jan 95

EST. VALUE (\$M): 34.000 for FY95

PRGM MGR: CDR Robert Upchurch

PCO: Mr. Marc Lesser

Super SETA Contract

Purpose of this acquisition is to obtain scientific, engineering and technical assistance support.

CONTRACT (Company) : SDIO84-93-C-0017, 0018 & 0019

TYPE OF ACTION : Follow-On

PLANNED AWARD DATE: Jun 94

EST. VALUE (\$M): 7.000 for FY94

PRGM MGR: COL Howard J. Withycombe

PCO: Mr. Peter Van Name

TEST & EVALUATION DIRECTORATE (GST)

Test and Evaluation Directorate SETA Services.

CONTRACT (Company) : HQ0006-94-R-0004
TYPE OF ACTION : New Contract
PLANNED AWARD DATE: May 94
EST. VALUE (\$M): TBD for FY94
PRGM MGR: LtCol. Randall Clendening **PCO:** LCDR Dan Smith

Systems, Engineering and Technology Assistance - Engineering

Support Civil Engineering Division of the Test and Evaluation Directorate, BMDO, in program management of facilities acquisition and integration activities. Perform technical analysis and review of documents which affect policy, management and facilities acquisition and environmental engineering program. Perform research on specified topics and prepare draft associated action papers and correspondence. Prepare draft input to POM and budget submittals. Provide meeting/conference as well as graphics and publication support. Provide facilities basing/siting support. Conduct special studies as required.

CONTRACT (Company) : SDIO84-90-C-0027 (Harris Group, Inc.)
TYPE OF ACTION : Option Exercise
PLANNED AWARD DATE: Jul 94
EST. VALUE (\$M): TBD for FY94
PRGM MGR: Maj. Tracy Bailey **PCO:** LCDR Dan Smith

Test and Evaluation Directorate SETA Services

Support Civil Engineering Division of the Test and Evaluation Directorate, BMDO, in program management of facilities acquisition and integration activities. Perform technical analysis and review of documents which affect policy, management and facilities acquisition and environmental engineering program. Perform research on specified topics and prepare draft associated action papers and correspondence. Prepare draft input to POM and budget submittals. Provide meeting/conference as well as graphics and publication support. Provide facilities basing/siting support. Conduct special studies as required.

CONTRACT (Company) :
TYPE OF ACTION : New Contract / Other Than Full and Open /
Small Business Set-Aside
PLANNED AWARD DATE: Jul 95
EST. VALUE (\$M): TBD for FY95
PRGM MGR: Maj. Tracy Bailey **PCO:** LCDR Dan Smith

DEPUTY FOR THEATER MISSILE DEFENSE (GT)

THEATER MISSILE DEFENSE (GT)

Engineering Support

Scientific, engineering and technical support for TMD.

CONTRACT (Company) : SDIO84-92-C-0006 (Ares Corp.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Feb 95

EST. VALUE (\$M): 10.0 for FY95

PRGM MGR: Major Charles Schwarz

PCO: Mr. Marc Lesser

PROGRAM MANAGEMENT & CORPORATE STRATEGY DIR. (GTP)

Poet Facility Support

CONTRACT (Company) : HQ0006-93-C-0027 (Adv. Resource Tech., Inc.)

TYPE OF ACTION : Option Exercise

PLANNED AWARD DATE: Sep 94

EST. VALUE (\$M): 1.300 for FY94

PRGM MGR: MAJ Charles Schwarz

PCO: Mr. Marc Lesser

**DEPARTMENT OF THE ARMY
U.S. ARMY
SPACE AND STRATEGIC DEFENSE
COMMAND**

**Forecast of Expected
Contract Opportunities
for FY94/95**

March 1994



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY SPACE AND STRATEGIC DEFENSE COMMAND
POST OFFICE BOX 1500
HUNTSVILLE, ALABAMA 35807-3801

April 20, 1993

Policy and Compliance Branch

SUBJECT: FY93 & FY94 U.S. Army Space and Strategic Defense
Command (USASSDC) Acquisition Estimate

Dear Sir:

Enclosed is the Acquisition Estimate for the USASSDC for fiscal years 1993 and 1994. The total estimated value range in \$M is for the total requirement and period of performance which in some cases may be five years. The estimate is for planning purposes only; solicitations are not available. Specific information on these acquisitions will not be furnished until the proposed acquisition is synopsisized or the solicitation issued. Decisions on multinational participation have not been made. These estimates are not to be construed as a commitment by the government to purchase the items described and are based on the best information available. These are estimates and, as such, are subject to revision or cancellation at any time.

When a proposed acquisition is synopsisized in the Commerce Business Daily (CBD), any offeror who has an existing contract with the USASDC which contains an organizational conflict of interest (OCI) agreement must submit a written request to obtain approval to participate in the acquisition. The approval is required if an OCI agreement is included at the prime or subcontract level and if the technology area is the same or closely relates to the subject solicitation. Requests for approval to participate should be submitted in accordance with CBD synopsis instructions for individual acquisitions.

This information serves as the Research and Development (R&D) Advance Notice (Sources Sought pursuant to FAR 5.205(a) for each individual item described.

Questions regarding a specific acquisition should be addressed in writing directly to the Contract Specialist listed as the point of contact for the particular acquisition. General questions regarding this document or requests to be added to the mailing list for future yearly mailings of the USASSDC Acquisition Estimates, should be addressed in writing to Ms. Elizabeth Ratliff, CSSD-CM-AC. The fax number is (205) 955-4240.

Sincerely,

Enclosure

Z.M. PHILLIPS
Chief, Contracting and
Acquisition Management Office

U.S. Army Space and Strategic Defense Command (USASSDC)

P.O. Box 1500
Huntsville, AL 35807-3801

Airborne Surveillance Testbed (AST) Office

Title of Procurement: AST Optical Systems (OS)

Brief description:

This acquisition is for effort to address system-level performance issues and solutions. The contractor shall provide independent analyses, technical support, and performance assessment for the AST integration and test tasks with special emphasis on optical testing and test target development and analyses. The contractor shall review and evaluate the impact of design and growth changes on the performance, flying qualities, and systems of the Boeing AST 767 aircraft. In later years of this effort, data processing will continue to evolve, testbed mission design support will be continued, analyses of data from completed missions will focus on support to midcourse issue resolution.

Contract Type:

Type Competition:

RFP Release Date: Feb 94

Estimated Contract Award Date:

Period of Performance:

Estimated Contract Value: \$1-5M

Points of Contact:

Technical: Ms. Geneva Jackson
CSSD-CM-TC
Phone: (205) 955-1187

Contractual:

Title of Procurement: Airborne Surveillance Testbed (AST)

Brief description:

This acquisition is for continued use of the AST to provide significant and timely contributions to resolution of major ballistic missile defense (BMD) issues. The scope of this effort includes definition of future experiments, experiment planning, conduct of experiments, and data reduction. Routine maintenance of the AST hardware and software, as well as AST support activities (Operations Security (OPSEC), product assurance, configuration control, etc.) are also provided.

Contract Type:

Type Competition: Sole Source (Boeing Defense & Space Group)

RFP Release Date: Mar 94

Estimated Contract Award Date:

Period of Performance: FY95, FY96, FY97

Estimated Contract Value: \$50-63M

Points of Contact:

Technical:	Ms. Geneva Jackson CSSD-CM-TC Phone: (205) 955-1187
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Sensors Directorate

Title of Procurement: Advanced Active Aperture Technology

Brief description:

This action will provide enhanced GBR operational/performance capabilities through design and development of advanced microwave, millimeter wave devices, circuit structures, innovative packaging concepts, and array control interfaces.

Contract Type:

Type Competition:

RFP Release Date: May 94

Estimated Contract Award Date:

Period of Performance:

Estimated Contract Value: \$15-20M

Points of Contact:

Technical: Ms. Mollie Houston
CSSD-CM-TC
Phone: (205) 955-1187

Contractual:

Title of Procurement: Advanced Radar Component Technology (ARCT)

Brief description:

The purpose of this action will be to develop and demonstrate advanced subsystems and support hardware for next generation GBR systems. Developments will offer highly enhanced operational and physical features. It will included RF (transmitters, receivers, antennas) processing (hardware, algorithms, software) architectures, and power conditioning.

Contract Type:

Type Competition:

RFP Release Date: Jun 94

Estimated Contract Award Date:

Period of Performance: 5 years

Estimated Contract Value: \$15-22M

Points of Contact:

Technical:	Ms. Mollie Houston
	CSSD-CM-TC
	Phone: (205) 955-1187

Title of Procurement: Advanced Rapid Optical Beam Steering System

Brief description:

The objective of this acquisition is to provide electro-optic precision tracking instrumentation for strategic and tactical interceptor lethality assessments. The Strategic Defense Initiative Organization developed advanced technologies to be included are laser radar technologies, passive aperture agile beam technologies. Multiple devices, as well as further development is planned. Device concept and design is to apply to ground, airborne, and space utilization.

Contract Type:

Type Competition:

RFP Release Date: Jan 95

Estimated Contract Award Date:

Period of Performance:

Estimated Contract Value: \$15-30M

Points of Contact:

Technical:	Ms. Mollie Houston
	CSSD-CM-TC
	Phone: (205) 955-1187

Systems Analysis/Battle Management (SABM) Directorate

Title of Procurement: Discrimination Environments Dynamics Analysis

Brief description:

The overall objective of this effort is to develop discrimination algorithms and system schema to support detection, identification, and tracking of theater missiles defense threats in hostile environments.

Contract Type:

Type Competition:

RFP Release Date: Mar 94

Estimated Contract Award Date:

Period of Performance:

Estimated Contract Value: \$1-3M

Points of Contact:

Technical: Ms. Mollie Houston
CSSD-CM-TC
Phone: (205) 955-1187

Contractual:

Global Protection Against Limited Strikes (GPALS) Ground Based Interceptor

Title of Procurement: GBI/TMD Analysis

Brief description:

The contractor shall perform technological and analytical assessments of GBI/TMD hardware, software, data management and test as each progresses through its life cycle.

Contract Type:

Type Competition:

RFP Release Date: Apr 94

Estimated Contract Award Date:

Period of Performance:

Estimated Contract Value: \$0-25M

Points of Contact:

Technical: Mr. John Ralls
CSSD-CM-GN
Phone: (205) 955-1187

Contractual:

Global Protection Against Limited Strikes (GPALS) ROC/COMM

Title of Procurement: Network Interface Terminal (NIT)

Brief description:

The contractor will develop and produce a COMSEC unit utilizing Windjammer devices (supplied as government-furnished equipment (GFE) for use in the Global Protection Against Limited Strikes (GPALS) National Missile Defense (NMD) system. This effort will encapsulate pre-processor and post-processor capability with the Windjammer Multi-Chip Module (MCM) into a single stand-alone unit to provide link encryption, end-trend encryption, authentication and key management capabilities for ground components in the NMD system.

Contract Type:

Type Competition:

RFP Release Date: Jan 94

Estimated Contract Award Date:

Period of Performance:

Estimated Contract Value: \$5-10M

Points of Contact:

Technical: Mr. John Ralls
CSSD-CM-GN
Phone: (205) 955-1187

Contractual:

**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS
SPACE AND MISSILE SYSTEMS CENTER**

**Forecast of Expected
Contract Opportunities
for FY94/95**

March 1994



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS SPACE AND MISSILE SYSTEMS CENTER (AFMC)
LOS ANGELES, CA

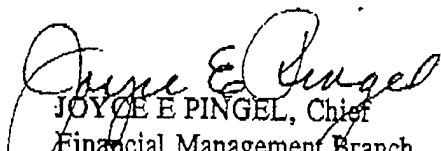
FROM: HQ SMC/MGP
185 Discoverer Blvd., Suite 1315
Los Angeles AFB, CA 90245-4695

14 January 1994

SUBJ: Ballistic Missile Defense Organization (BMDO) Forecast of Expected Contract Opportunities
for Fiscal Years 1994 and 1995

TO: BMDO/DCT
7100 Defense Pentagon
Washington, DC 20301-7100

1. Reference your letter dated 03 December 1993, same subject.
2. Forecasts of planned AF BMDO funded procurements are provided at Atch 1. Planned procurements are constrained due to funding uncertainties.
3. Please call Barbara Atkinson, MGPF, DSN 833-3277 or CML (310) 363-3277 if you have any questions.


JOYCE E PINGEL, Chief
Financial Management Branch
AF BMD Programs

1 Atch
Planned AF BMD FY 94-95 Procurements

cc: AFPEO/SP
BMDO/DPF

DEPARTMENT OF THE AIR FORCE
Headquarters Space and Missile Systems Center (AFMC)
Los Angeles, CA

Title of Procurement: HAVE STAR

Brief description:

To provide NAIC with completed analysis and design information to support NAIC's role as Air Force Force Threat Manager for Ballistic Missile Defense (BMD), the Air Defense Initiative (ADI), and other new initiatives; including technical engineering analysis on technologies and subsystems of projected foreign weapon programs.

Contract Type:

Type of Action: Full and Open - Time and Materials cost
reimbursable (indefinite quantity)

RFP Release Date: Estimated Jan/Feb 1994

Estimated Contract Award Date: June 1994

Period of Performance: 60 months

Estimated Contract Value: \$200,000 - \$24,000,000

Points of Contact:

Technical: NAIC/TAIX (Mr. John Tuss)
4115 Hebble Creek Rd., Suite 33
Wright-Patterson AFB, OH 45433-5637
Phone:

Contractual: NAIC/TAIX (Mr. Frank Monnin)
4115 Hebble Creek Rd., Suite 33
Wright-Patterson AFB, OH 45433-5637
Phone:

Title of Procurement: Four Meter ULE™ Glass Mirror Blank
Manufacture for Chemical Laser Large Optics

Brief description:

The objective is to produce a 4-m diameter, 20-mm thick ULE™ glass blank, slumped and ground to a 10-m radius of curvature. The blank is to be provided GFE to a contractor for fabrication of a 4-m active primary mirror and potential integration into a space-qualified telescope.

Contract Type: Fixed Price

Type of Action: Anticipated Sole Source

RFP Release Date: 1 September 1993

Estimated Contract Award Date: 31 December 1994

Period of Performance: 18 months from award date, contract will complete

Estimated Contract Value: \$2M

Points of Contact:

Technical: Theresa McCarthy-Brow
Phillips Laboratory
Kirtland AFB, NM 87117-5776
Phone: (505) 846-1683

Contractual:

Title of Procurement: Surveillance Optical Technologies

Brief description:

Innovative approaches in the field of low-cost, long-life components for future surveillance systems will be sought. This includes areas such as precision silicon carbide substrate fabrication, durable multi-function thin-film coating deposition, control of particulate and molecular contaminants, and analysis/ prediction/testing of component lifetimes in normal and stressed operating environments. Several individual tasks are expected under this Broad Agency Announcement, ranging from 6 to 12 months in duration. The overall objective is to demonstrate advanced technologies for improving producibility, extending lifetime, and increasing the performance of components for multi-spectral optical sensors operating in terrestrial or space environments.

Contract Type: Fixed Price

Type of Action: Broad Agency Announcement (BAA)

RFP Release Date: 20 October 1994

Estimated Contract Award Date: 25 February 1995

Period of Performance: 24 months

Estimated Contract Value: \$1.8M

Points of Contact:

Technical: Richard Fedors
Rome Laboratory/OCPC
25 Electronic Parkway
Griffiss AFB, NY 13441-4515
Phone: (315) 330-3144

Contractual: TBD
Rome Laboratory/PK
26 Electronic Parkway
Griffiss AFB, NY 13441-4514
Phone:

DEFENSE NUCLEAR AGENCY

Forecast of Expected Contract Opportunities for FY94/95

March 1994



Defense Nuclear Agency
6801 Telegraph Road
Alexandria, Virginia 22310-3398

14 JAN 1994

AM

MEMORANDUM FOR DIRECTOR OF CONTRACTS, BALLISTIC MISSILE DEFENSE
ORGANIZATION, ATTN: DCT, 7100 DEFENSE PENTAGON,
WASHINGTON, DC 20301-7100

SUBJECT: Ballistic Missile Defense Organization (BMD0) Forecast
of Expected Contract Opportunities for Fiscal Years
1994 and 1995

Reference your memorandum dated 3 December 1993, same
subject.

As requested, attached are brief descriptions of the
Ballistic Missile Defense Organization (BMD0) sponsored
contracting opportunities that are anticipated to be awarded by
the Defense Nuclear Agency (DNA) during Fiscal Years 1994 and
1995.

If you have any questions on these proposed procurements, the
point of contact in this office is Mr. Dennis E. Reed at
(703) 325-1197.

FOR THE DIRECTOR:

DAVID G. FREEMAN
Director
Acquisition Management

Attachments

DEFENSE NUCLEAR AGENCY

6801 Telegraph Road
Alexandria, VA 22310-3398

Title of Procurement: Lethality criteria and system trade studies

Brief description:

This contract will evaluate existing lethality criteria for defeating threat theater ballistic missiles carrying a variety of warheads including conventional, advance conventional, nuclear, chemical, and biological warheads in bulk or submunition/bomblet form. The contract will develop new criteria where existing criteria is inadequate. The contract will evaluate lethality models and simulations used to obtain end game results for adequacy in system trade studies. The contract will develop new models and simulations where existing models and simulations are inadequate.

Contract Type: CPFF

Type of Action: Full and Open

RFP Release Date: October 1994

Estimated Contract Award Date:

Period of Performance: 2-3 years

Estimated Contract Value: \$800K

Points of Contact:

Technical: CDR Kenneth W. Hunter, USN
Shock Physics Special Projects (SPSP)
Phone: (703) 325-0358

Contractual: Mr. Thomas O. McCabe
Contracting Officer
Phone: (703) 325-1200

Title of Procurement: Lethality database development

Brief description:

This contract will continue developing a European and NATO Theater Missile defense lethality database to avoid duplication of efforts between Allied and U.S. lethality research. Tasks would include visiting potential database contributors to collect data, installing data onto the database, promoting the existence of the database, responding to requests for data, and supplying data from the database.

Contract Type: CPFF

Type of Action: Full and Open

RFP Release Date: October 1994

Estimated Contract Award Date:

Period of Performance: 2-3 years

Estimated Contract Value: \$200-600K

Points of Contact:

Technical: Maj. Brian Hanson, USAF
Shock Physics Special Projects (SPSP)
Phone: (703) 325-1275

Contractual: Mr. Thomas O. McCabe
Contracting Officer
Phone: (703) 325-1200